

PROJECT INFORMATION

CODE COMPLIANCE

THE PROPOSED PROJECT SHALL COMPLY WITH THE FOLLOWING CITY OF SAN MARCOS APPLICABLE CODES, INCLUDING ALL ACCEPTED AMENDMENTS:

- 2015 INTERNATIONAL BUILDING CODE (IBC)
- 2015 INTERNATIONAL FIRE CODE (IFC)
- 2015 INTERNATIONAL MECHANICAL CODE (IMC)
- 2015 INTERNATIONAL PLUMBING CODE (IPC)
- 2014 NATIONAL ELECTRICAL CODE (NEC)
- 2015 INTERNATIONAL ENERGY COMPLIANCE CODE (IECC)
- 2013 ASHRAE 90.1
- 2018 LIFE SAFETY STANDARDS
- TEXAS ACCESSIBILITY STANDARDS (TAS)

SCOPE OF WORK

THE SCOPE OF WORK FOR THIS PROJECT INCLUDES A GROUND-UP ONE-STORY 4,762 S.F. CONVENTIONAL STEEL AND LOAD BEARING CMU BUILDING WITH ADJACENT PRE-FABRICATED VACUUM CANOPIES, LOCATED ON A 3.17 ACRE TRACT OF LAND IN THE CITY OF SAN MARCOS.

SPACE	OCCUPANCY	SIZE (S.F.)	HEIGHT
OFFICE	B	520 S.F.	13' - 0"
CAR WASH	B	4,242 S.F.	29' - 7"
TOTAL BUILDING	MIXED-USE	4,762 S.F.	29' - 7"

CODE ANALYSIS

PROJECT DESCRIPTION

B, 520 S.F. (TYPE II-B - LIMIT: 4 STORIES, 23,000 S.F.) THE AREAS LABELED AS OFFICE SERVE A BUSINESS GROUP B OCCUPANCY WHERE THE TENANTS SPECIFIC USE WILL BE OFFICE, STORAGE OF RECORDS AND ACCOUNTS.

B, 4,242 S.F. (TYPE II-B - LIMIT: 4 STORIES, 23,000 S.F.) THE AREAS LABELED AS CAR WASH SERVE A BUSINESS GROUP B WHERE THE TENANTS SPECIFIC USE WILL BE CLEANING AND MAINTAINING MOTOR VEHICLES (CAR WASH).

CONSTRUCTION TYPE

TYPE II-B - NON-SPRINKLERED

OCCUPANCY CALCULATIONS

OFFICE: 520/100 = 6 OCCUPANTS
 ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM: 1011/300 = 4 OCCUPANTS
 ELECTRICAL ROOM: 231/300 = 1 OCCUPANT
 CARWASH TUNNEL: 3,000/500 = 6 OCCUPANTS
 TOTAL = 17 OCCUPANTS

ALLOWABLE AREA

MOST RESTRICTIVE PROVISIONS:

SINGLE FIRE AREA IS CREATED, BOUNDED BY THE EXTERIOR WALLS OF THE BUILDING - B OCCUPANCY, 4 STORY HEIGHT LIMIT, II-B CONSTRUCTION AND AREA LIMITATIONS AS NOTED BELOW:

TOTAL ALLOWABLE AREA: 23,000 S.F.
 ACTUAL BUILDING AREA: 4,762 S.F.

ALL OTHER APPLICABLE CODE REQUIREMENTS ARE ADDRESSED IN THE PLANS AND ARE APPLIED, INCLUDING, BUT NOT LIMITED TO: CHAPTER 6 - TYPES OF CONSTRUCTION, CHAPTER 8 - INTERIOR FINISHES, CHAPTER 10 - MEANS OF EGRESS, ETC.

PER SECTION 503.1.2 - BUILDINGS ON THE SAME LOT:

TWO OR MORE BUILDINGS ON THE SAME LOT SHALL BE REGULATED AS SEPERATE BUILDINGS OR SHALL BE CONSIDERED AS PORTIONS OF ONE BUILDING IF THE BUILDING HEIGHT OF EACH BUILDING AND THE AGGREGATE BUILDING AREA OF THE BUILDINGS ARE WITHIN THE LIMITATIONS OF TABLE 503 AS MODIFIED BY SECTIONS 504 AND 506. THE PROVISIONS OF THIS CODE APPLICABLE TO THE AGGREGATE BUILDING SHALL BE APPLICABLE TO EACH BUILDING.

DISCLAIMER

ALL OCCUPANCY/USE DESCRIPTION IS BASED ON INFORMATION PROVIDED BY THE TENANT/BUILDING OWNER/CLIENT - METHOD ARCHITECTURE IS NOT RESPONSIBLE FOR ANY FALSIFIED INFORMATION

MEANS OF EGRESS

EGRESS WIDTH CALCULATIONS: IBC 1005.1

OTHER EGRESS COMPONENTS WIDTH:

17 OCCUPANTS x .20 INCHES = 3.4" REQUIRED : 60" MIN PROVIDED

PER IBC 1005.5 MULTIPLE MEANS OF EGRESS SHALL BE SIZED SUCH THAT THE LOSS OF ANY ONE MEANS OF EGRESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAT 50 PERCENT OF THE REQUIRED CAPACITY

COMMON PATH OF EGRESS TRAVEL: IBC 1014.3

COMMON PATH OF EGRESS TRAVEL IN GROUP B, AND S OCCUPANCIES SHALL NOT BE MORE THAN 100 FEET, PROVIDED THAT THE BUILDING DOES NOT HAVE AN AUTOMATIC SPRINKLER SYSTEM AND OCCUPANT LOAD IS LESS THAN OR EQUAL TO 30
COMMON TRAVEL PATH DOES NOT EXCEED 100' IN B OCCUPANCY AREAS

TRAVEL DISTANCE LIMITATIONS: IBC 1016.2

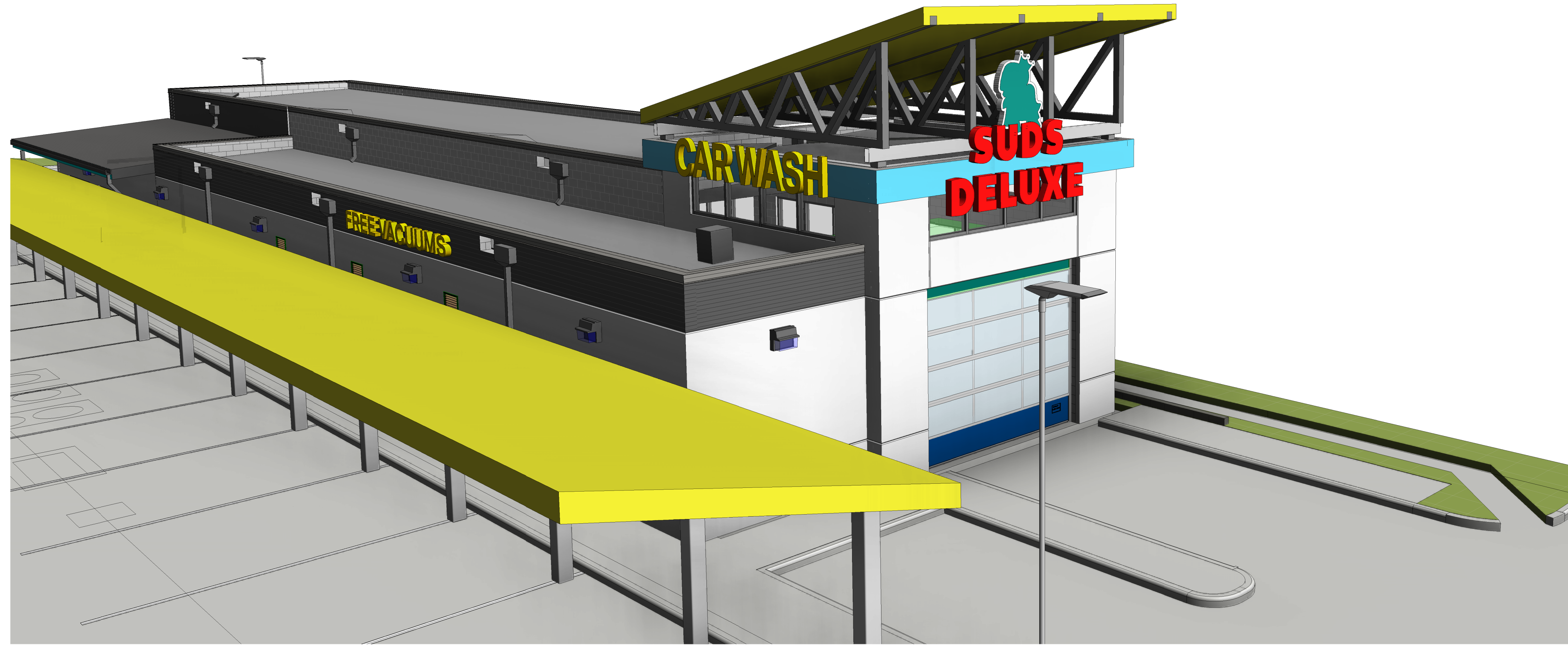
EXITS SHALL BE LOCATED ON EACH STORY SUCH THAT THE MAXIMUM LENGTH OF EXIT ACCESS TRAVEL, MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY TO THE ENTRANCE TO AN EXIT ALONG THE NATURAL AND UNOBSTRUCTED PATH OF EGRESS TRAVEL, SHALL NOT EXCEED THE DISTANCES GIVEN IN TABLE 1016.2.
TRAVEL DISTANCES DOES NOT EXCEED 200' IN B OCCUPANCY AREAS

TWO EXITS OR EXIT ACCESS DOORWAYS: IBC 1015.2.1

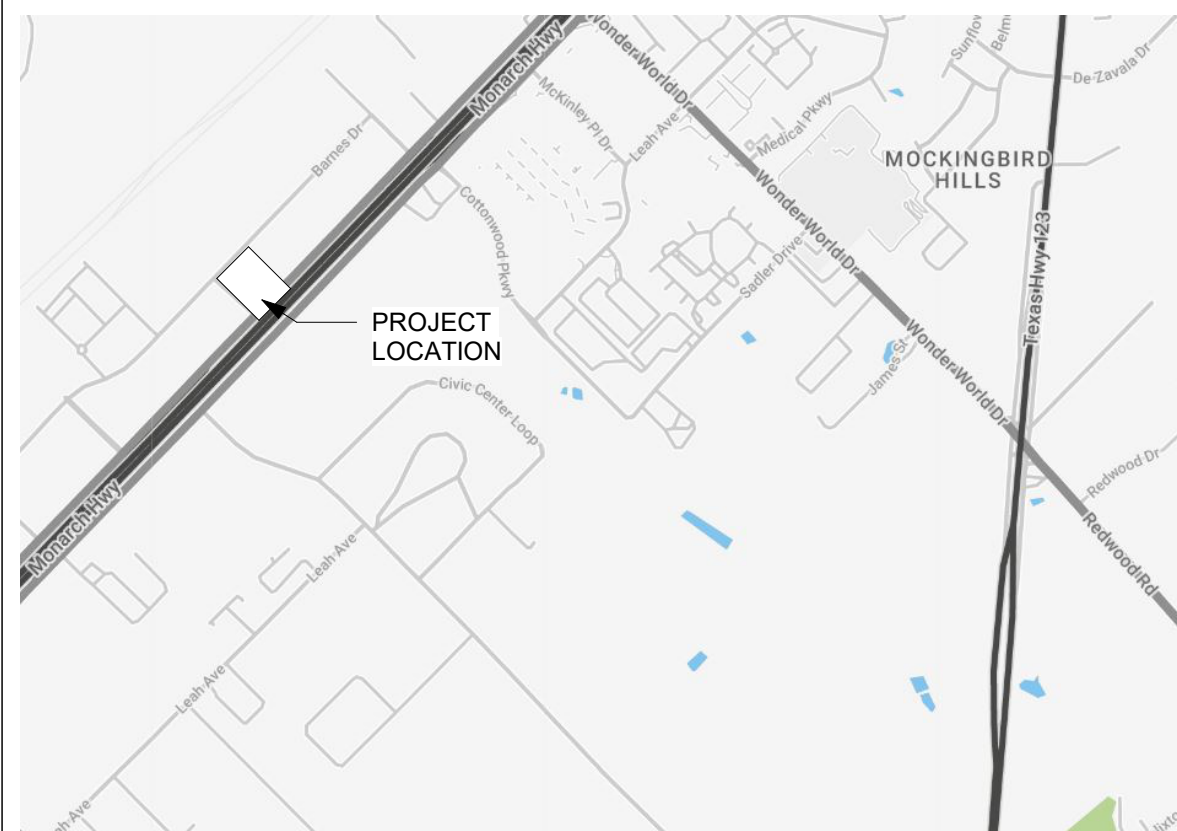
WHERE TWO EXITS OR EXIT ACCESS DOORWAYS ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THE EXIT DOORS OR EXIT ACCESS DOORWAYS SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-HALF OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN EXIT DOORS OR EXIT ACCESS DOORWAYS.
MAXIMUM BUILDING DIAGONAL = 139' (1/2) = 69.5' REQUIRED : 78' PROVIDED

NUMBER AND CONTINUITY OF EXITS: IBC 1021.1

MINIMUM NUMBER OF EXITS. ALL ROOMS AND SPACES WITHIN EACH STORY SHALL BE PROVIDED WITH AND HAVE ACCESS TO THE MINIMUM NUMBER OF APPROVED INDEPENDENT EXITS BASED ON THE OCCUPANT LOAD OF THE STORY.
OCCUPANT LOAD PER STORY 1-500 = 2 REQUIRED: 2 MIN PROVIDED



LOCATION MAP



PROJECT CONTACTS

OWNER:
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 CONTACT: SHAHAN BHAIANI
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GENERAL CONTRACTOR:
 TBD

CIVIL ENGINEER:
 TRIANGLE ENGINEERING LLC
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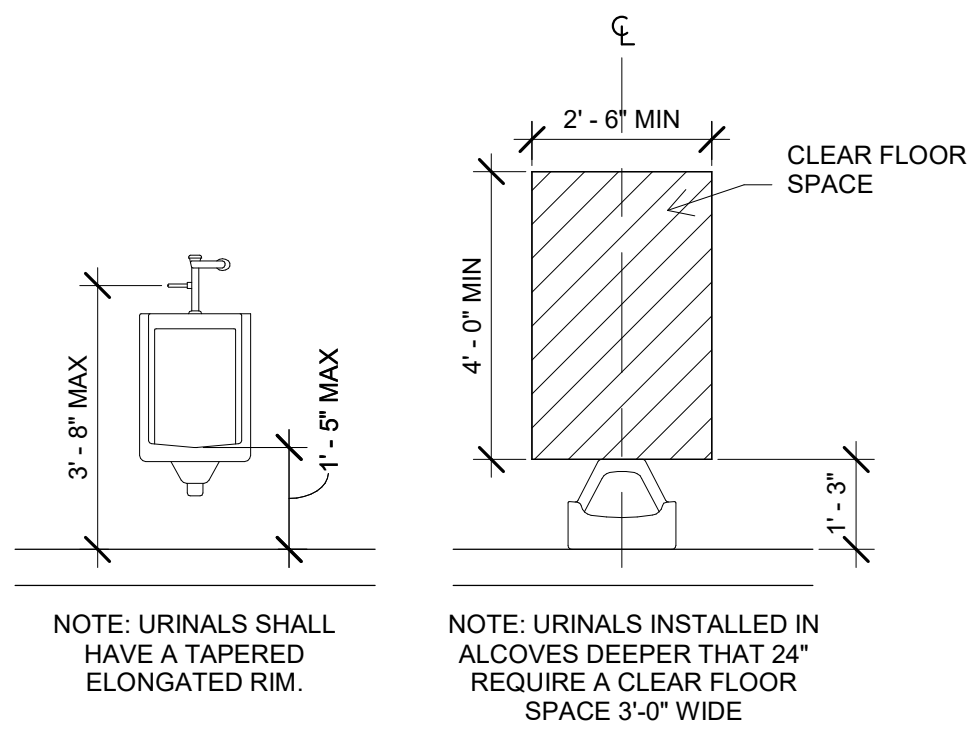
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1 08/30/22 ISSUED FOR PERMIT
 2 11/08/22 COR COMMENT RESPONSE #1



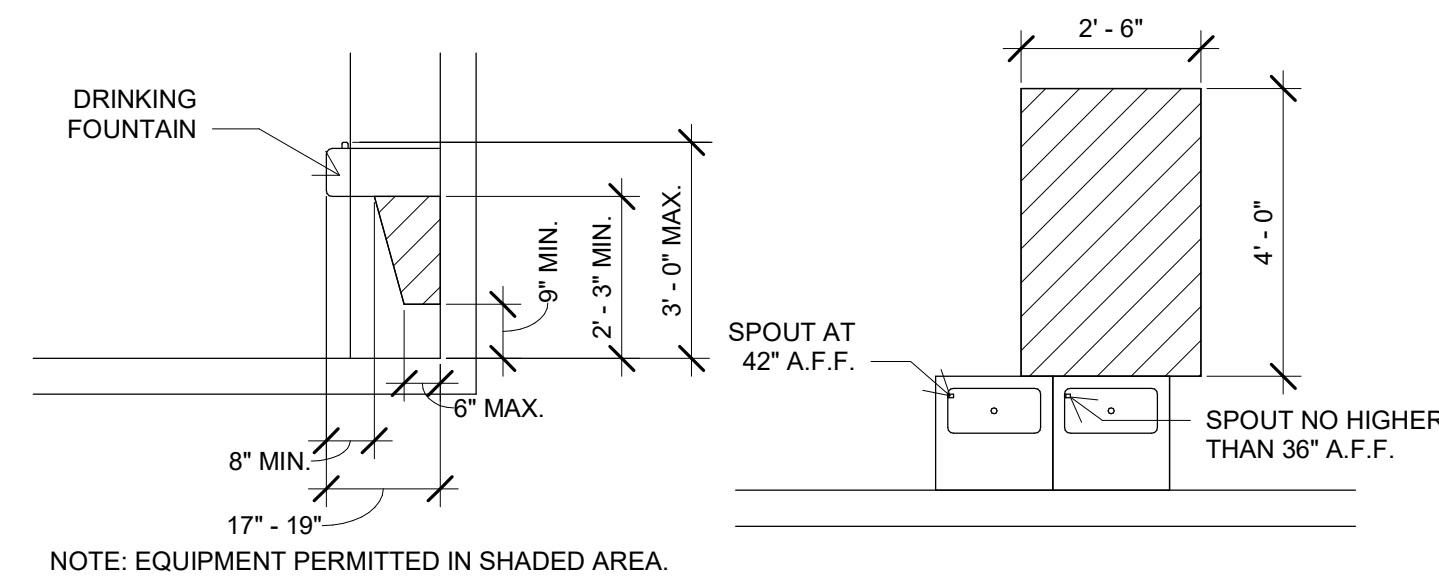
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NOTE: URINALS SHALL HAVE A TAPERED ELONGATED RIM.

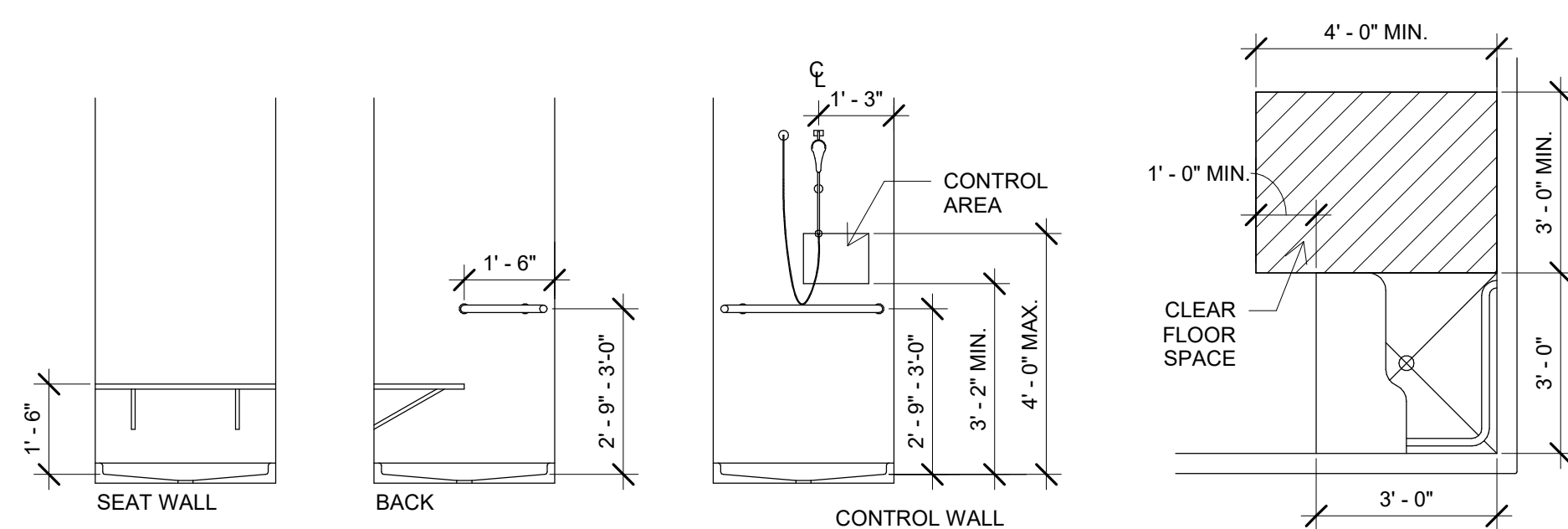
NOTE: URINALS INSTALLED IN ALCOVES DEEPER THAN 24\"/>

TAS SECTION 605.2 - URINALS
3/8" = 1'-0" 20



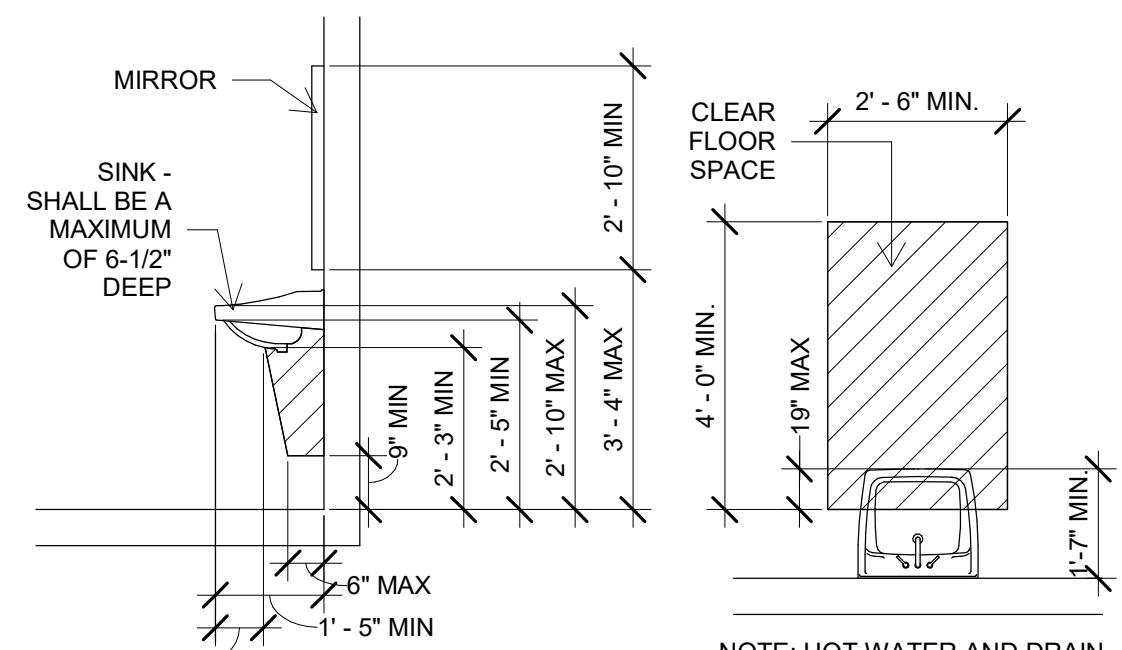
NOTE: EQUIPMENT PERMITTED IN SHADED AREA.

STANDARD ADA DRINKING FOUNTAIN
3/8" = 1'-0" 12



NOTE: PROVIDE A SHOWER SPRAY UNIT WITH A HOSE AT LEAST 60\"/>

TAS SECTION 608 - SHOWER STALLS
3/8" = 1'-0" 15



NOTE: HOT WATER AND DRAIN PIPES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. FAUCETS SHALL COMPLY WITH TAS.

TAS SECTION 606 - LAVATORIES
3/8" = 1'-0" 11

- ADA NOTES**
1. THESE DRAWINGS ARE FOR GENERAL MOUNTING CLEARANCE REFERENCE. SEE PLANS FOR LAYOUT AND CONFIGURATION. ALL DIMENSIONS SHALL CONFORM TO TEXAS ACCESSIBILITY STANDARDS. ALL DIMENSIONS SHALL BE FROM FACE OF PARTITION MATERIAL FINISH, U.N.O., REFERENCE AND COORDINATE WITH FLOOR AND FINISH MATERIAL PLANS AND SCHEDULES.
 2. IN THE EVENT CONFLICTS ARE DISCOVERED BETWEEN INFORMATION ON THIS SHEET AND INFORMATION SHOWN ELSEWHERE, THE INFORMATION ON THIS SHEET SHALL GOVERN.
 3. INFORMATION SHOWN ON THIS SHEET IS THE MINIMUM REQUIREMENT FOR ACCESSIBILITY COMPLIANCE AND DOES NOT ADDRESS COMPLIANCE WITH OTHER CODES OR STANDARDS.
 4. ALL DIMENSIONS SHOWN ARE TO THE APPLIED FINISHED FACE. CONTRACTOR SHALL MAKE ALLOWANCES FOR THICKNESSES OF SCHEDULED FINISHES.
 5. THIS IS A STANDARD SHEET. ALL INFORMATION SHOWN ON THIS SHEET DOES NOT NECESSARILY APPLY TO THIS PROJECT.
 6. SECTION NUMBERS ON THIS SHEET REFERENCE THE 2012 TEXAS ACCESSIBILITY STANDARDS (TAS) OF THE ARCHITECTURAL BARRIERS ACT, ARTICLE 9102, TEXAS CIVIL STATUTES.
 7. REFERENCES TO ADA (AMERICANS WITH DISABILITIES ACT) THROUGHOUT CONSTRUCTION DRAWINGS SHALL MEAN COMPLIANCE WITH 2012 TAS (TEXAS ACCESSIBILITY STANDARDS).

ACCESSIBLE ROUTE - EXTERIOR

TAS SECTION 403.5.1 - CLEAR WIDTH
THE CLEAR WIDTH OF WALKING SURFACES SHALL BE 36\"/>

TAS SECTION 403.3 - SLOPE
THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:20. THE CROSS SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:48.

TAS 705 - DETECTABLE WARNINGS
DETECTABLE WARNINGS SHALL CONSIST OF A SURFACE OF TRUNCATED DOMES. TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL HAVE A BASE DIAMETER OF 0.9\"/>

ACCESSIBLE PARKING

TAS SECTION 502.2 - VEHICLE SPACES
CAR PARKING SPACES SHALL BE 96\"/>

TAS SECTION 503.3.1 & 503.3.2 - PASSENGER LOADING ZONES
ACCESS AISLES SERVING VEHICLE PULL-UP SPACES SHALL BE 60\"/>

TAS SECTION 208.2.4 & 502.2 - VAN PARKING SPACES
FOR EVERY SIX OR FRACTION OF SIX PARKING SPACES REQUIRE AT LEAST ONE VAN PARKING SPACE. VAN PARKING SPACES SHALL BE 132 INCHES WIDE MINIMUM, SHALL BE MARKED TO DEFINE THE WIDTH, AND SHALL HAVE AN ADJACENT ACCESS AISLE.

TAS SECTION 502.6 - IDENTIFICATION
PARKING SPACE IDENTIFICATION SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY COMPLYING WITH 703.7.2.1. SIGN IDENTIFYING VAN PARKING SPACES SHALL CONTAIN THE DESIGNATION "VAN ACCESSIBLE". SIGNS SHALL BE 60 INCHES MINIMUM ABOVE THE FINISHED FLOOR OR GROUND SURFACE MEASURED TO THE BOTTOM OF THE SIGN.

ENTRANCES

TAS SECTION 216.6 - ENTRANCES
ACCESSIBLE ENTRANCES, WHEN NOT ALL ARE ACCESSIBLE, SHALL BE IDENTIFIED BY THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. INACCESSIBLE ENTRANCES SHALL HAVE DIRECTIONAL SIGNAGE TO INDICATE THE ROUTE TO THE NEAREST ACCESSIBLE ENTRANCE.

TAS SECTION 703.1 - SIGNS
SIGNAGE SHALL COMPLY WITH 703. WHERE BOTH VISUAL AND TACTILE CHARACTERS ARE REQUIRED, EITHER ONE SIGN WITH BOTH VISUAL AND TACTILE CHARACTERS, OR TWO SEPARATE SIGNS, ONE WITH VISUAL, AND ONE WITH TACTILE CHARACTERS, SHALL BE PROVIDED.

PROTRUDING OBJECTS

TAS SECTION 307.2 - PROTRUSION LIMITS
OBJECTS WITH LEADING EDGES MORE THAN 27-INCHES AND NOT MORE THAN 80-INCHES ABOVE THE FINISH FLOOR OR GROUND SHALL PROTRUDE 4-INCHES MAXIMUM HORIZONTALLY INTO THE CIRCULATION PATH.

EXCEPTION: HANDRAILS SHALL BE PERMITTED TO PROTRUDE 4-1/2-INCHES MAXIMUM.

CURB RAMPS

TAS SECTION 406.2 - COUNTER SLOPES
COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 1:20. THE ADJACENT SURFACES AT TRANSITIONS AT CURB RAMPS TO WALKS, GUTTERS, AND STREETS SHALL BE AT THE SAME LEVEL.

TAS SECTION 406.4 - LANDINGS
LANDINGS SHALL BE PROVIDED AT THE TOPS OF THE CURB RAMPS. THE LANDING CLEAR LENGTH SHALL BE 36\"/>

TAS SECTION 406.3 - SIDES OF CURB RAMPS
WHERE PROVIDED, CURB RAMP FLARES SHALL NOT BE STEEPER THAN 1:10.

SIGNAGE

TAS SECTION 216 - BUILDING SIGNS
SIGNS WHICH DESIGNATE PERMANENT ROOMS AND SPACES SHALL COMPLY WITH ALL SECTIONS OF SECTIONS 206 AND 703. ELEMENTS AND SPACES OF ACCESSIBLE FACILITIES WHICH SHALL BE IDENTIFIED BY THE INTERNATIONAL SYMBOL OF ACCESSIBILITY ARE PARKING SPACES AS RESERVED FOR INDIVIDUALS WITH DISABILITIES, ACCESSIBLE PASSENGER LOADING ZONES, ACCESSIBLE ENTRANCES WHEN NOT ALL ARE ACCESSIBLE, AND ACCESSIBLE TOILET AND BATHING FACILITIES WHEN NOT ALL ARE ACCESSIBLE.

TAS SECTION 216.2 & 216.3 - BUILDING SIGNS
SIGNS WHICH DESIGNATE PERMANENT ROOMS AND SPACES AND OTHER SIGNS WHICH DIRECT TO OR INFORMATION ABOUT FUNCTIONAL SPACES OF THE BUILDING SHALL COMPLY WITH ALL SECTIONS OF 703.5. (BUILDING DIRECTORIES, MENUS, AND ALL OTHER SIGNS WHICH ARE TEMPORARY ARE NOT REQUIRED TO COMPLY.)

TAS SECTION 703.2.4 - CHARACTER PROPORTION
CHARACTERS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 55 PERCENT MINIMUM AND 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "T".

TAS SECTION 703.2.3 - RAISED AND BRAILED CHARACTERS
RAISED CHARACTERS SHALL BE 1/32\"/>

TAS SECTION 703.5.1 - FINISH AND CONTRAST
CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-CLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND WITH EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.

HAND RAILS AND GRAB BARS

TAS SECTION 609.3 SPACING
THE SPACE BETWEEN THE WALL AND THE GRAB BAR SHALL BE 1 1/2\"/>

TAS SECTION 609.2 & 505.7.1 CIRCULAR CROSS SECTION
GRAB BARS AND HANDRAIL GRIPPING SURFACES WITH CIRCULAR CROSS SECTIONS SHALL HAVE AN OUTSIDE DIAMETER OF 1 1/4\"/>

TAS SECTION 505.7.2 & 609.2.2 NON-CIRCULAR CROSS SECTIONS
HANDRAIL GRIPPING SURFACES WITH A NON-CIRCULAR CROSS SECTION SHALL HAVE A PERIMETER DIMENSION OF 4\"/>

TAS SECTIONS 405.5 - CLEAR WIDTH
THE MINIMUM CLEAR WIDTH OF A RAMP RUN, WHERE HANDRAILS ARE PROVIDED, SHALL BE 36\"/>

TAS SECTION 609.8 - STRUCTURAL STRENGTH
ALLOWABLE STRESSES SHALL NOT BE EXCEEDED FOR MATERIALS USED WHEN A VERTICAL OR HORIZONTAL FORCE OF 250 POUNDS IS APPLIED AT ANY POINT ON THE GRAB BAR, FASTENER, MOUNTING DEVICE, OR SUPPORTING STRUCTURE.

TAS SECTION 505.8 & 609.5 - SURFACE HAZARDS
HANDRAILS, GRAB BARS, AND ANY WALL OR OTHER SURFACES ADJACENT TO GRAB BARS AND HANDRAILS SHALL BE FREE OF SHARP OR ABRASIVE ELEMENTS AND SHALL HAVE ROUNDED EDGES.

DOORS

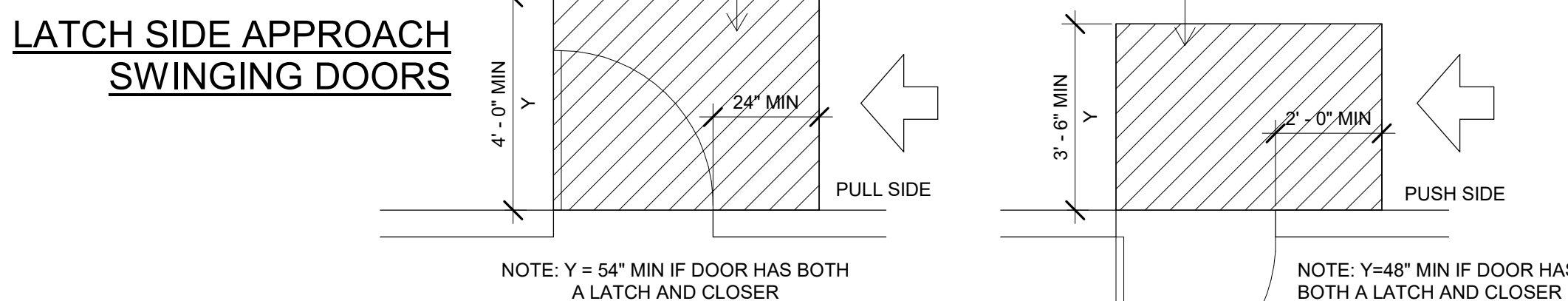
TAS SECTION 404.2.3 - CLEAR WIDTH
DOOR OPENINGS SHALL PROVIDE A CLEAR WIDTH OF 32\"/>

TAS SECTION 404.2.5 - THRESHOLDS
THRESHOLDS, IF PROVIDED AT DOORWAYS, SHALL BE 1/2\"/>

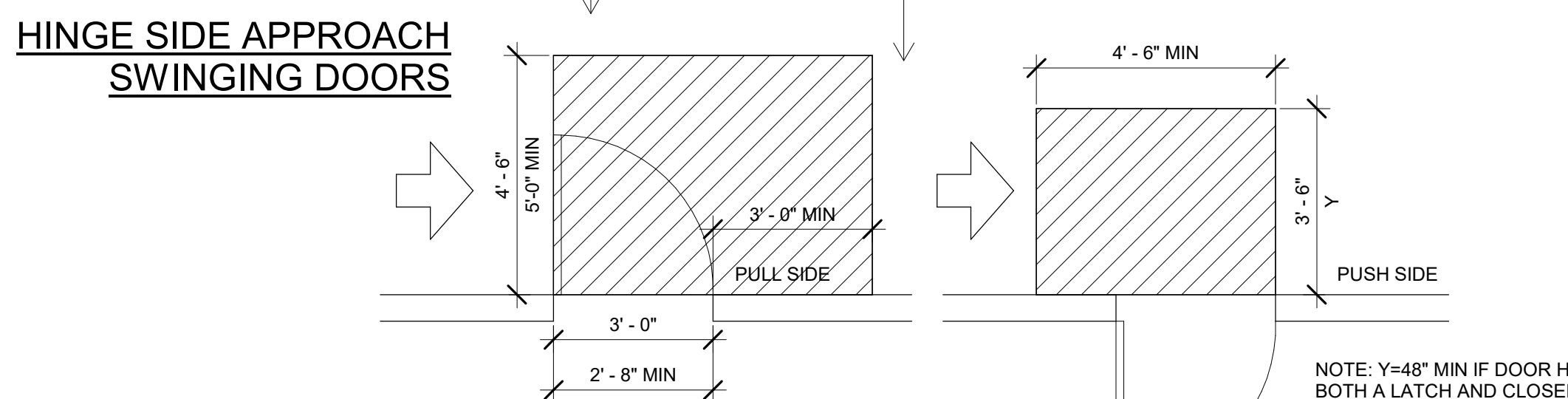
TAS SECTION 404.2.7 - DOOR AND GATE HARDWARE
HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERABLE PARTS ON DOORS AND GATES SHALL COMPLY WITH 309.4. OPERABLE PARTS OF SUCH HARDWARE SHALL BE 34\"/>

TAS SECTION 404.2.8.1 - DOOR CLOSERS AND GATE CLOSERS
DOOR CLOSERS AND GATE CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM.

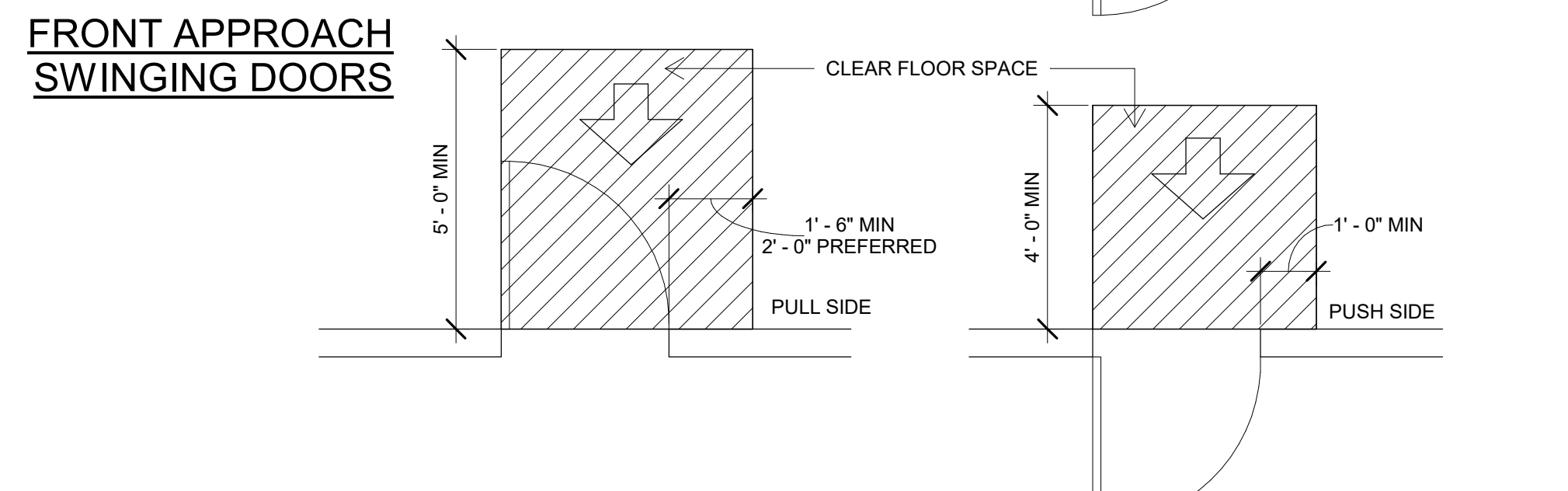
TAS SECTION 404.2.9 - DOOR AND GATE OPENING FORCE
THE MAXIMUM FORCE PERTAINS TO THE CONTINUOUS APPLICATION OF FORCE NECESSARY TO FULLY OPEN A DOOR, NOT THE INITIAL FORCE NEEDED TO OVERCOME THE INERTIA OF THE DOOR. IT DOES NOT APPLY TO THE FORCE REQUIRED TO RETRACT BOLTS OR TO DISENGAGE OTHER DEVICES USED TO KEEP THE DOOR IN A CLOSED POSITION.



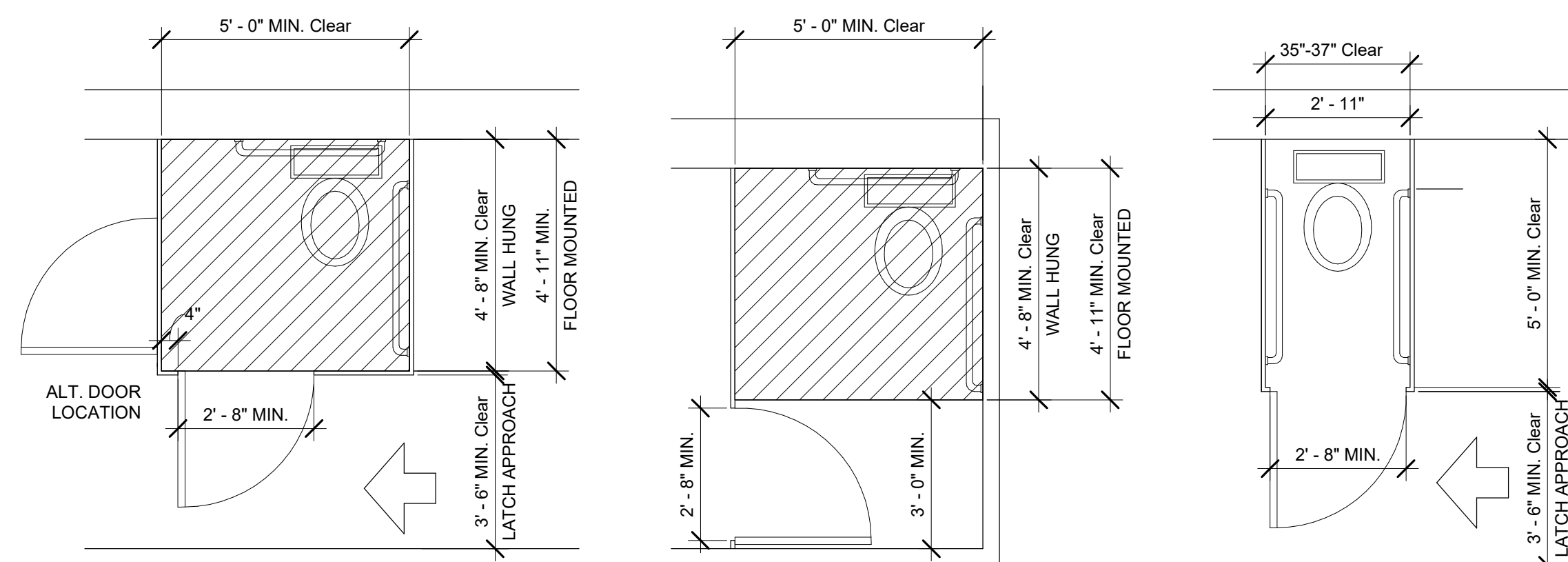
NOTE: Y = 54\"/>



NOTE: Y=48\"/>



TAS SECTION 404 - DOORS
3/8" = 1'-0" 9

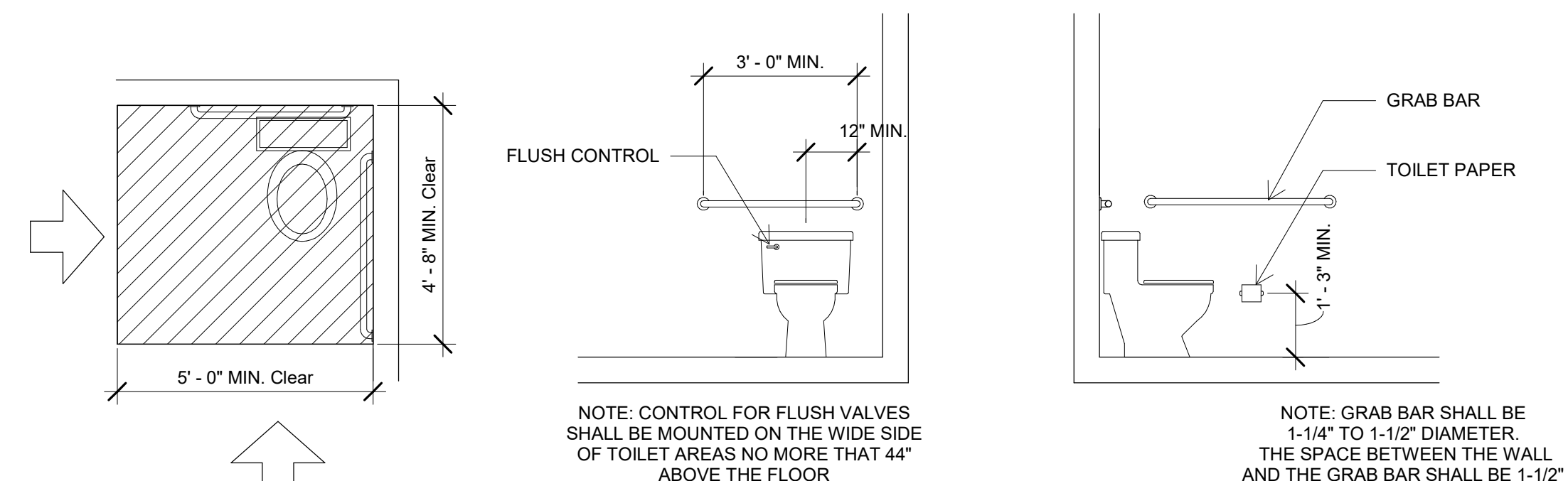


NOTE: ALL OTHER APPROACHES 4'-0\"/>

STANDARD STALLS

ALTERNATE STALL

TAS SECTION 604.8.1.1 - TOILET STALLS
3/8" = 1'-0" 6



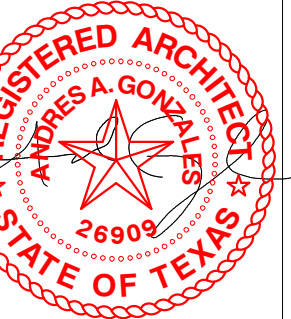
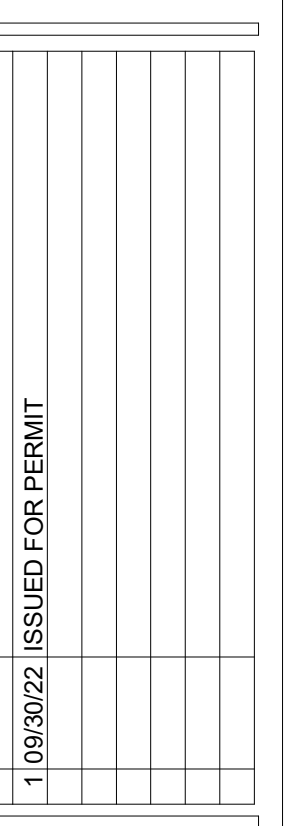
NOTE: CONTROL FOR FLUSH VALVES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS NO MORE THAN 44\"/>

NOTE: GRAB BAR SHALL BE 1-1/4\"/>

CLEAR FLOOR SPACE

HEIGHT REQUIREMENTS

TAS SECTION 604.3.1 - WATER CLOSETS
3/8" = 1'-0" 5



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SUDS DELUXE CAR WASH
SAN MARCOS
IH: 35 & CHISOS
SAN MARCOS, TEXAS 78666

PROJECT: M22-02-B0035
SHEET: 00.02
ACCESSIBILITY STANDARDS

503.4 FLOOR AND GROUND SURFACES. VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL COMPLY WITH 302. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE VEHICLE PULL-UP SPACE THEY SERVE. CHANGES IN LEVEL ARE NOT PERMITTED.

EXCEPTION: SLOPES NOT STEEPER THAN 1:48 SHALL BE PERMITTED.

503.5 VERTICAL CLEARANCE. VEHICLE PULL-UP SPACES, ACCESS AISLES SERVING THEM, AND A VEHICULAR ROUTE FROM AN ENTRANCE TO THE PASSENGER LOADING ZONE, AND FROM THE PASSENGER LOADING ZONE TO A VEHICULAR EXIT SHALL PROVIDE A VERTICAL CLEARANCE OF 114 INCHES (2895 MM) MINIMUM.

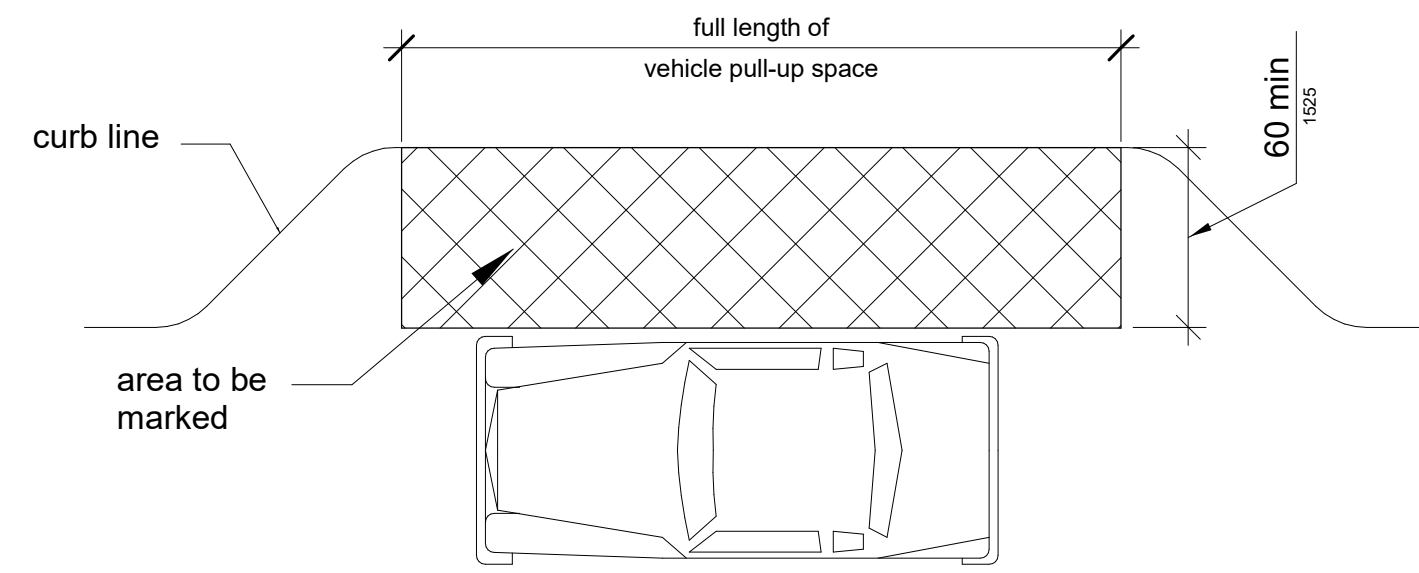


Figure 503.3 Passenger Loading Zone Access Aisle

PASSENGER LOADING ZONE

3/16" = 1'-0"

8

502.2 VEHICLE SPACES. CAR PARKING SPACES SHALL BE 96 INCHES (2440 MM) WIDE MINIMUM AND VAN PARKING SPACES SHALL BE 132 INCHES (3350 MM) WIDE MINIMUM. SHALL BE MARKED TO DEFINE THE WIDTH, AND SHALL HAVE AN ADJACENT ACCESS AISLE COMPLYING WITH 502.3.

EXCEPTION: VAN PARKING SPACES SHALL BE PERMITTED TO BE 96 INCHES (2440 MM) WIDE MINIMUM WHERE THE ACCESS AISLE IS 96 INCHES (2440 MM) WIDE MINIMUM.

502.3 ACCESS AISLE. ACCESS AISLES SERVING PARKING SPACES SHALL COMPLY WITH 502.3. ACCESS AISLES SHALL ADJOIN AN ACCESSIBLE ROUTE. TWO PARKING SPACES SHALL BE PERMITTED TO SHARE A COMMON ACCESS AISLE.

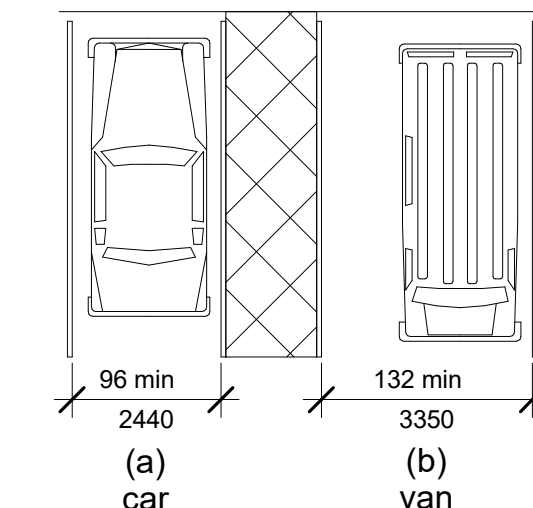


Figure 502.2 Vehicle Parking Spaces

ADA PARKING - CAR / VAN

1" = 10'-0"

4

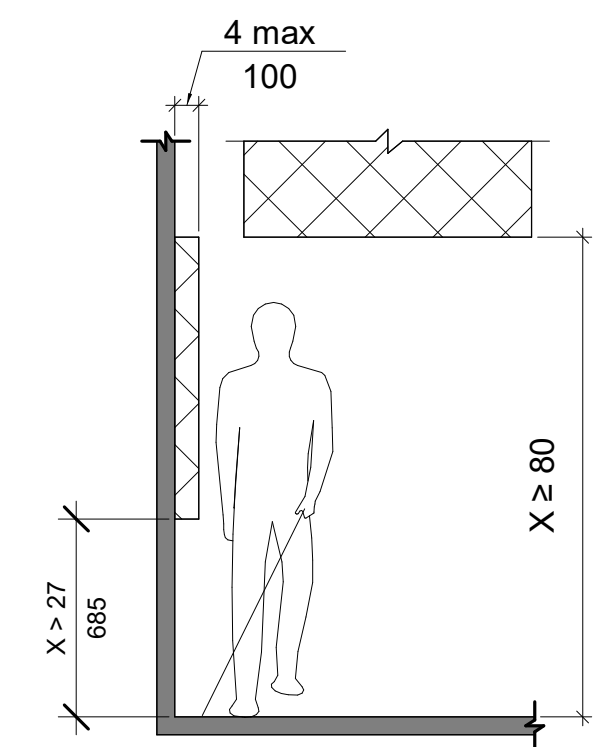
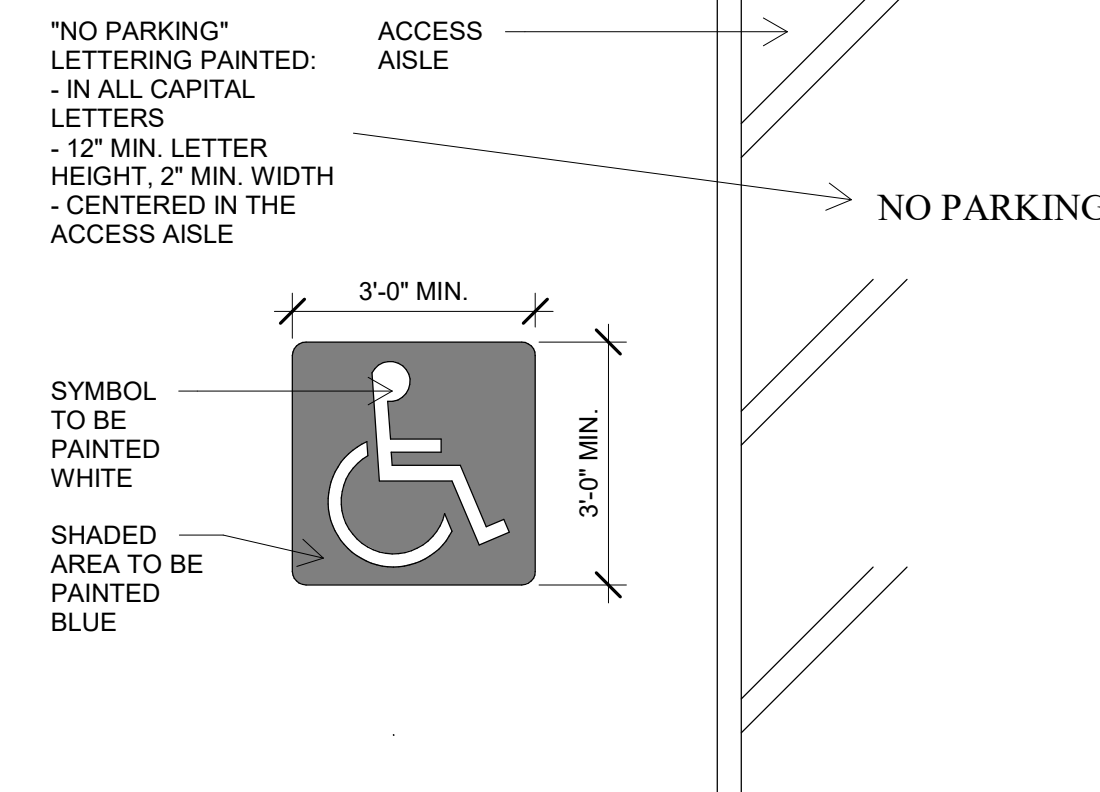


Figure 307.2 Limits of Protruding Objects

PROTRUDING OBJECTS

3/8" = 1'-0"

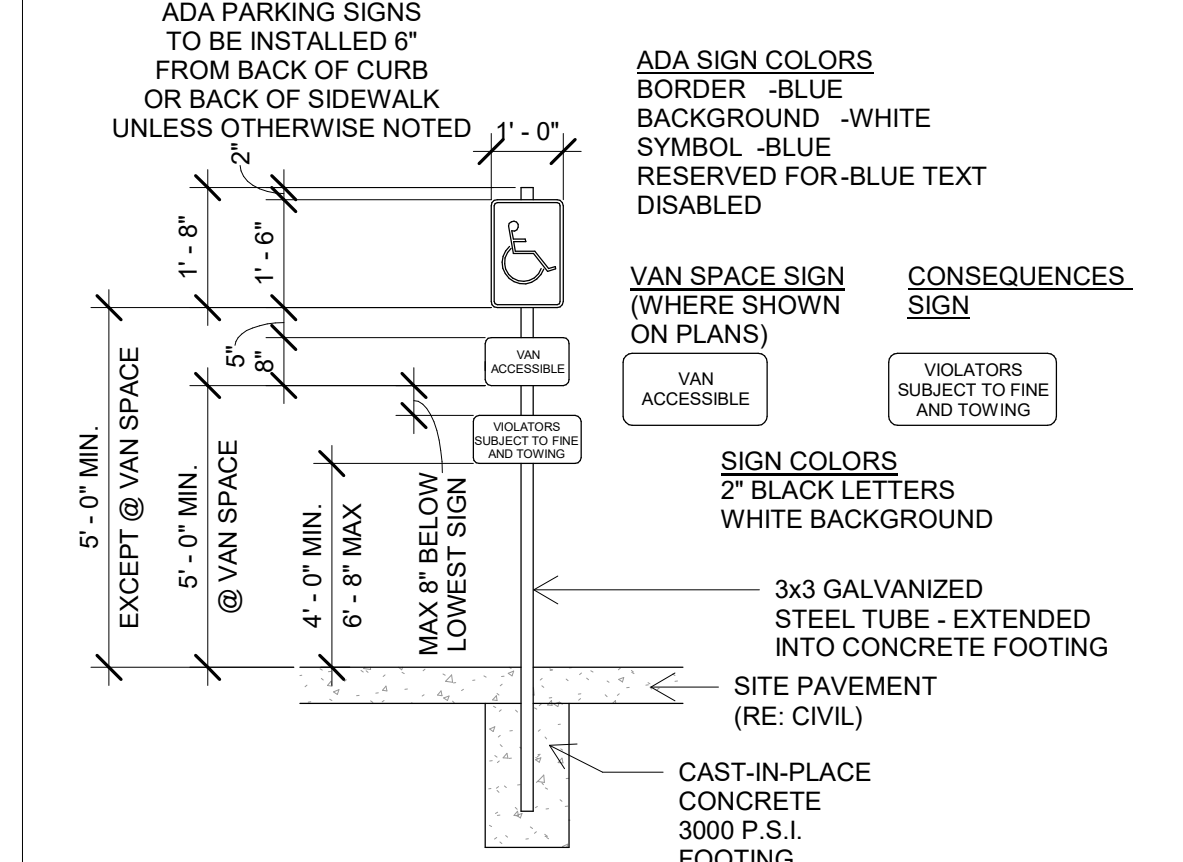
11



ADA PARKING SYMBOL

3/4" = 1'-0"

7



ADA PARKING SIGN

3/8" = 1'-0"

3

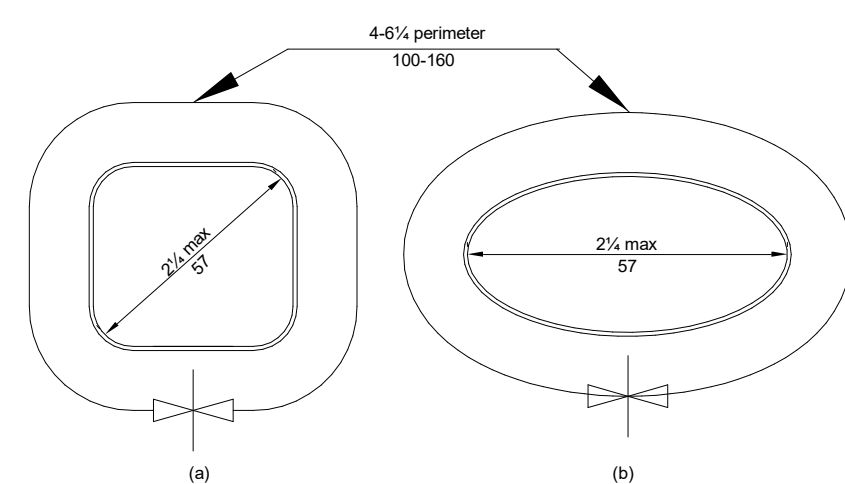


Figure 505.4 Handrail Height

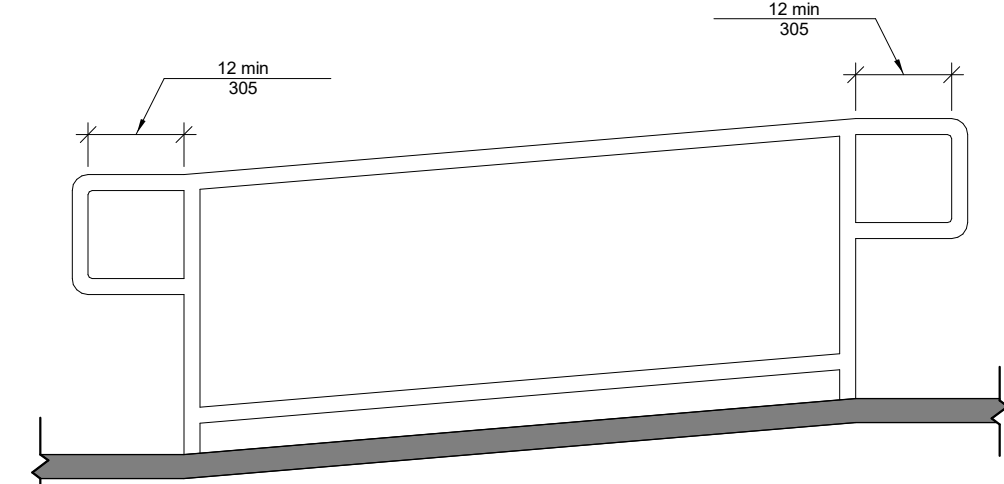


Figure 505.4 Handrail Height

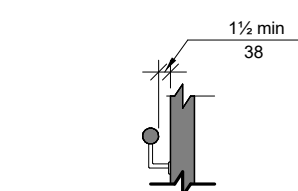


Figure 505.4 Handrail Height

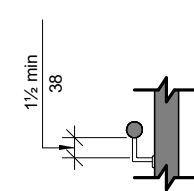


Figure 505.4 Handrail Height

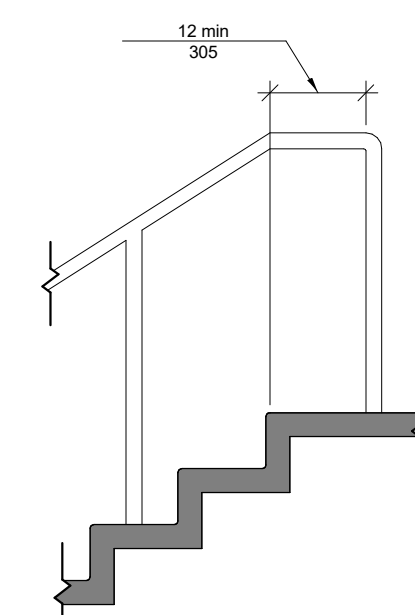


Figure 505.4 Handrail Height

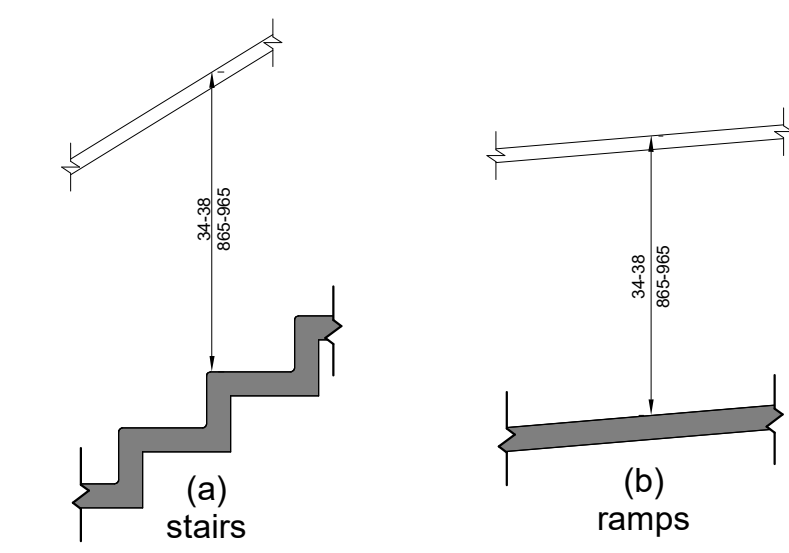
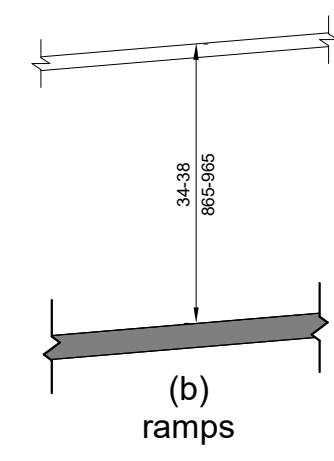
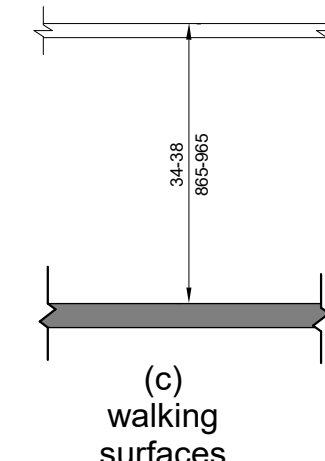


Figure 505.4 Handrail Height



(b) ramps



(c) walking surfaces

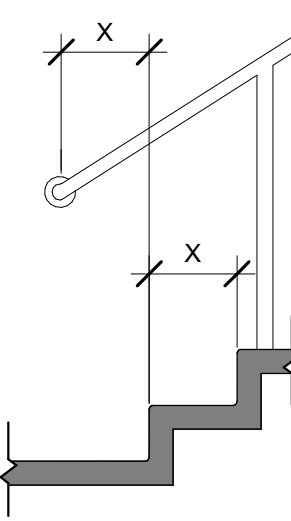
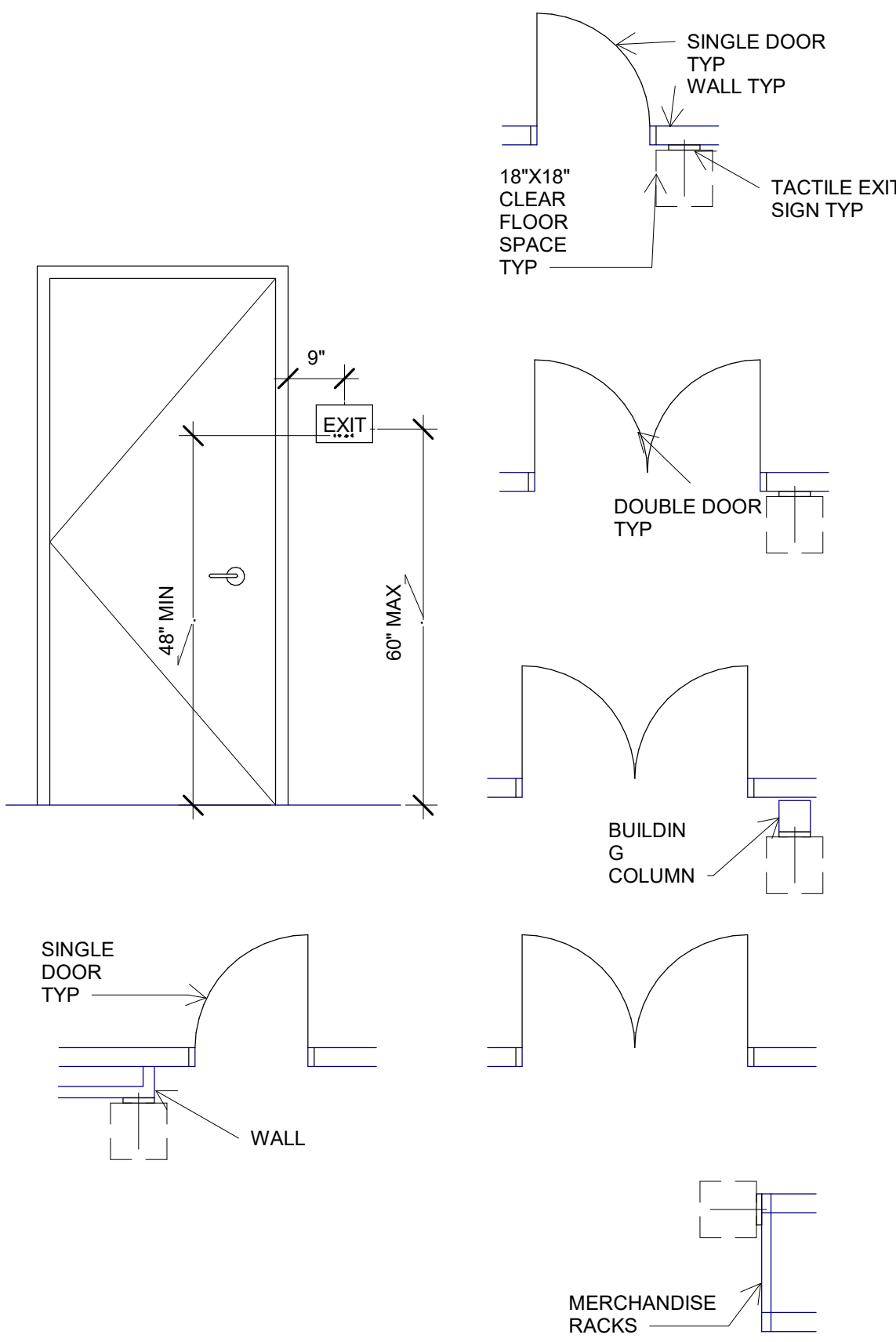


Figure 505.10.3 Bottom Handrail Extension at Stairs

HANDRAIL HEIGHT

1/2" = 1'-0"

9



TACTILE SIGNAGE

1/2" = 1'-0"

5

TACTILE SIGN REQUIREMENTS

- A TACTILE SIGN STATING "EXIT" AND COMPLYING WITH ANSI A117.1 SHALL BE PROVIDED BY GC ADJACENT TO EACH DOOR TO AN EXIT PASSAGEWAY AND THE EXIT DISCHARGE. REF DOOR SCHEDULE FOR LOCATIONS.
- FOR CHARACTER WIDTH, THE UPPERCASE LETTER "O" SHALL BE USED TO DETERMINE THE ALLOWABLE WIDTH OF ALL CHARACTERS OF A FONT. THE WIDTH OF THE UPPERCASE LETTER "O" OF THE FONT SHALL BE 55 PERCENT MINIMUM AND 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE "I" OF THE FONT. (ANSI A117.1-2009: 703.3.6) CHARACTER HEIGHT MEASURED FROM THE BASELINE OF THE CHARACTER SHALL BE 5/8" (16 MM) MINIMUM AND 2 INCHES (51 MM) MAXIMUM BASED ON THE HEIGHT OF THE UPPERCASE LETTER "I".
- CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND.
- CHARACTERS SHALL CONFORM TO THE FOLLOWING:
 - LETTERS AND NUMBERS ON SIGNS SHALL BE RAISED 1/32" MINIMUM AND SHALL BE SANS-SERIF UPPERCASE CHARACTERS ACCOMPANIED BY GRADE 2 BRAILLE
 - RAISED CHARACTERS OR SYMBOLS SHALL BE A MINIMUM OF 5/8" HIGH AND A MAXIMUM OF 2" CONTRACTED GRADE 2 BRAILLE SHALL BE USED. DOTS SHALL BE 0.030" (2.3 MM) TO 0.100" (2.5 MM) ON CENTER IN EACH CELL WITH 0.231" (5.1 MM) TO 0.300" (7.6 MM) SPACE BETWEEN CELLS. DOTS SHALL BE RAISED A MINIMUM OF 0.025" (0.6 MM) TO 0.037" (0.9 MM) ABOVE THE BACKGROUND.
- SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR, WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT. MOUNTING HEIGHT SHALL BE LOCATED 48 INCHES (1220 MM)
- MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASE OF THE LOWEST TACTILE CHARACTER AND 60 INCHES (1525 MM) MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST TACTILE CHARACTER. WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF, THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAFS, THE SIGN SHALL BE LOCATED ON THE RIGHT OF THE RIGHT HAND DOOR. WHERE THERE IS NO WALL SPACE AT THE LATCH SIDE OF A SINGLE DOOR OR AT THE RIGHT SIDE OF DOUBLE DOORS, SIGNS SHALL BE LOCATED ON THE NEAREST ADJACENT WALL. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18 INCHES (455 MM) MINIMUM BY 18 INCHES (455 MM) MINIMUM, CENTERED ON THE TACTILE CHARACTERS, IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AND 45 DEGREE OPEN POSITION.

EXCEPTION: SIGNS WITH TACTILE CHARACTERS SHALL BE PERMITTED ON THE PUSH SIDE OF DOORS WITH CLOSERS AND WITHOUT HOLD-OPEN DEVICES.

TABLE 721.1(2) RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS^{a, p}

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE ^b (inches)			
			4 hours	3 hours	2 hours	1 hour
3. Concrete masonry units	3-1.1 ^a	Expanded slag or pumice	4.7	4.0	3.2	2.1
	3-1.2 ^a	Expanded clay, shale or slate	5.1	4.4	3.6	2.6
	3-1.3 ^a	Limestone, cinders or air-cooled slag	5.9	5.0	4.0	2.7
	3-1.4 ^a	Calcareous or siliceous gravel	6.2	5.3	4.2	2.8

RATED EXTERIOR CMU WALLS TO BE AT LEAST 3" THICK TO COMPLY WITH 1-HR RATING AS REQUIRED

TABLE 721.1 RATED WALLS

1 1/2" = 1'-0"

12

EGRESS NOTES

EGRESS WIDTH CALCULATIONS: IBC 1005.1
OTHER EGRESS COMPONENTS WIDTH:
17 OCCUPANTS x .20 INCHES = 3.4" REQUIRED : 60" MIN PROVIDED

PER IBC 1005.5 MULTIPLE MEANS OF EGRESS SHALL BE SIZED SUCH THAT THE LOSS OF ANY ONE MEANS OF EGRESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50 PERCENT OF THE REQUIRED CAPACITY

COMMON PATH OF EGRESS TRAVEL: IBC 1014.3
COMMON PATH OF EGRESS TRAVEL IN GROUP B, AND S OCCUPANCIES SHALL NOT BE MORE THAN 100 FEET, PROVIDED THAT THE BUILDING DOES NOT HAVE AN AUTOMATIC SPRINKLER SYSTEM AND OCCUPANT LOAD IS LESS THAN OR EQUAL TO 30

COMMON TRAVEL PATH DOES NOT EXCEED 100' IN B OCCUPANCY AREAS

TRAVEL DISTANCE LIMITATIONS: IBC 1016.2
EXITS SHALL BE LOCATED ON EACH STORY SUCH THAT THE MAXIMUM LENGTH OF EXIT ACCESS TRAVEL, MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY TO THE ENTRANCE TO AN EXIT ALONG THE NATURAL AND UNOBSTRUCTED PATH OF EGRESS TRAVEL, SHALL NOT EXCEED THE DISTANCES GIVEN IN TABLE 1016.2.

TRAVEL DISTANCES DOES NOT EXCEED 200' IN B OCCUPANCY AREAS

TWO EXITS OR EXIT ACCESS DOORWAYS: IBC 1015.2.1
WHERE TWO EXITS OR EXIT ACCESS DOORWAYS ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THE EXIT DOORS OR EXIT ACCESS DOORWAYS SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-HALF OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN EXIT DOORS OR EXIT ACCESS DOORWAYS.

MAXIMUM BUILDING DIAGONAL = 109' (1/2) = 54.5' REQUIRED : 78' PROVIDED

NUMBER AND CONTINUITY OF EXITS: IBC 1021.1
MINIMUM NUMBER OF EXITS. ALL ROOMS AND SPACES WITHIN EACH STORY SHALL BE PROVIDED WITH AND HAVE ACCESS TO THE MINIMUM NUMBER OF APPROVED INDEPENDENT EXITS BASED ON THE OCCUPANT LOAD OF THE STORY.
OCCUPANT LOAD PER STORY 1-500 = 2 REQUIRED: 2 MIN PROVIDED

FIRE CODE COMPLIANCE

- OWNER OR TENANT SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS PER NFPA 10 REQUIREMENTS
- FIRE ALARM PLANS AND SPECIFICATIONS SHALL BE PRESENTED FOR REVIEW AND APPROVAL PRIOR TO SYSTEM INSTALLATION / ALTERATION
- FIRE ALARM SIGNAL DEVICE PLAN AND SPECIFICATIONS SHALL BE PRESENTED FOR REVIEW AND APPROVAL PRIOR TO SYSTEM INSTALL / ALTERATION AND WILL BE CONNECTED TO BUILDING FIRE ALARM SYSTEM

FIRE / EMERGENCY ALARM AND DETECTION REQUIREMENTS

- FIRE ALARM SYSTEM WILL BE PROVIDED AND PERMITTED SEPARATELY PRIOR TO INSTALLATION.
- FIRE ALARM PANEL (IF REQUIRED) SHALL BE INSTALLED AT A LOCATION WITH A 3'-0" CLEARANCE IN FRONT. COORDINATE THE LOCATION THAT ALLOWS THIS CLEARANCE PRIOR TO DESIGN / PLACEMENT OF OTHER EQUIPMENT IN THE MECHANICAL ROOM AND ADVISE DESIGN TEAM IF ADJUSTMENTS ARE REQUIRED.

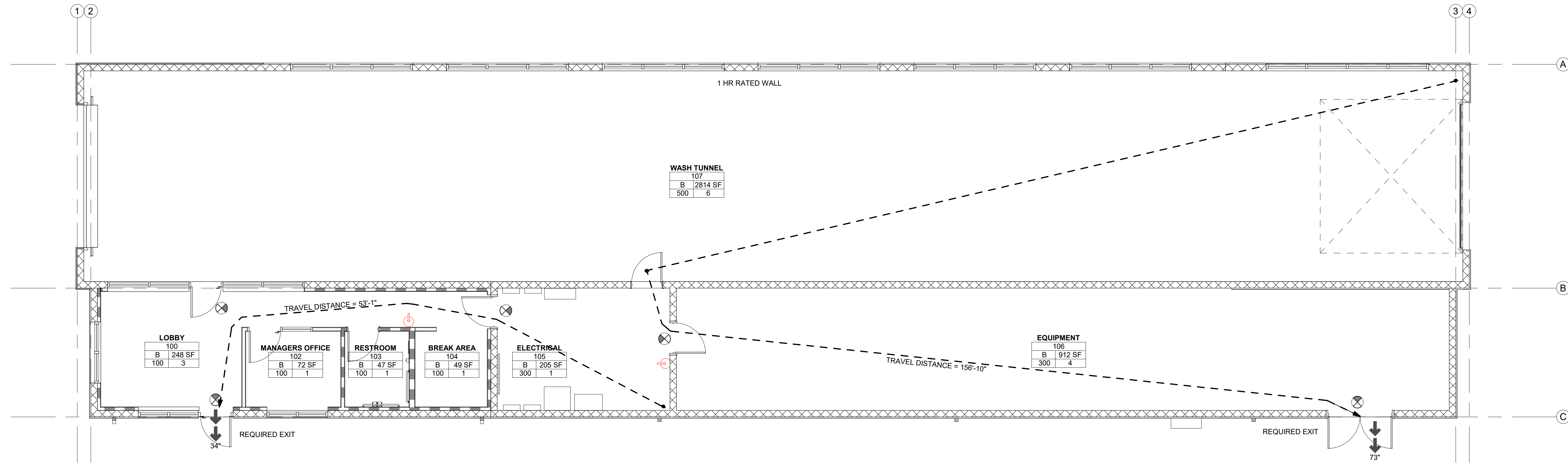
OCCUPANT NOTIFICATION
PROVIDE SYSTEM FOR NOTIFYING OCCUPANTS - SYSTEM TO COMPLY WITH NFPA 72

FIRE-RESISTANCE RATING REQUIREMENTS		
BUILDING ELEMENTS, HOURS (IBC TABLE 601)		
TYPE IIB CONSTRUCTION	REQUIRED RATING (HOURS)	REQUIRED RATING (HOURS)
PRIMARY STRUCTURAL FRAME	0	0
BEARING WALLS - EXTERIOR	0	0
BEARING WALLS - INTERIOR	0	0
NONBEARING WALLS AND PARTITIONS - INTERIOR	0	0
FLOOR CONSTRUCTION / SECONDARY MEMBERS	0	0
ROOF CONSTRUCTION / SECONDARY MEMBERS	0	0

LIFE SAFTEY SYMBOL LEGEND

- INDICATES BRACKET MOUNTED FIRE EXTINGUISHER
- INDICATES CEILING MOUNTED EXIT SIGN
- INDICATES RECESSED FIRE EXTINGUISHER CABINET
- INDICATES ROOM NAME/NUMBER & OCCUPANCY LOAD

ROOM NAME — SQUARE FOOTAGE
 OCC-XXXXX SF — OCCUPANT LOAD
 XXXX-XXX — OCCUPANCY TYPE
 XXXX-XXX — OCCUPANCY RATIO (PER PERSON)



LIFE SAFETY FLOOR PLAN

3/16" = 1'-0"

1



METHOD ARCHITECTURE, LLC
 THESE DRAWINGS ARE THE PROPERTY OF METHOD ARCHITECTURE, LLC AND MAY NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF METHOD ARCHITECTURE, LLC.

SITE DEVELOPMENT PLANS FOR CAR WASH & GAS STATION IH 35 & CHISOS CITY OF SAN MARCOS HAYS COUNTY, TEXAS 78666 THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2 3.17 ACRES

NOTES:

- THIS PROJECT IS SUBJECT TO TCEQ'S TPDES SWPPPREGULATIONS PER TEXAS WATER CODE CHAPTER 26. IF NOT ALREADY DONE, HAVE A TX PE, CPESC, OR QPSWPPP DEVELOP/AMEND A PROJECT-SPECIFIC SWPPP AND SEEK APPLICABLE TPDES PERMIT TXR150000 COVERAGE IMMEDIATELY PER TXR150000 PARTS I-III AND CITY CODE SECTION 86.529(B)(2) OR 86.529(C)(3). A HARD-COPY OF THE SWPPP, INCLUDING FULL-SIZE SITE MAP, MUST BE AVAILABLE AT THE PRE-CON MEETING, KEPT ONSITE, AND UPDATED TO MATCH SITE CONDITIONS DURING THE PROJECT."
- REGISTRATION WITH TECQ FOR UNDER GROUND STORAGE TANK REQUIRED.

SEQUENCE OF CONSTRUCTION

- OBTAIN CITY-APPROVED SITE PLAN PERMIT AND APPLICABLE TPDES SWPPP PERMIT TXR150000 COVERAGE; HAVE A TX PE, CPESC, OR QPSWPPP PREPARE/AMEND PROJECT-SPECIFIC SWPPP.
- INSTALL TEMPORARY EROSION/SEDIMENTATION CONTROLS, AND TREE PROTECTION FENCING IF APPLICABLE, PER PLANS.
- UPLOAD TO MYGOVERNMENTONLINE.ORG OR OTHERWISE PROVIDE TO THE PERMIT CENTER THE SIGNED, CERTIFIED APPLICABLE TPDES CONSTRUCTION SITE NOTICE (CSN). POST THE CSN IN PUBLIC VIEW.
- SCHEDULE PRE-CON MEETING WITH THE PERMIT CENTER, 512-805-2630.
- BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
- BEGIN SITE CLEARING AND GRADING.
- HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT. MAINTAIN ALL EROSION CONTROL MEASURES AND ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS.
- INSTALL TEMPORARY SEDIMENTATION POND, IF APPLICABLE.
- CONSTRUCT IMPROVEMENTS PER CITY-APPROVED SITE PLANS.
- COMPLETE PERMANENT STABILIZATION: RESTORE AND REVEGETATE ALL UNCOVERED AREAS DISTURBED DURING THE PROJECT, INCLUDING OFFSITE AREAS.
- SCHEDULE SITE FINAL INSPECTION WITH THE PERMIT CENTER: SITEFINAL@SANMARCOSTX.GOV OR 512-805-2630.
- COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
- WITH CITY APPROVAL, REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION WITH UNIFORM PERENNIAL VEGETATION OF AT LEAST 70% DENSITY, EVENLY DISTRIBUTED WITH NO LARGE BARE AREAS, IS ESTABLISHED.
- UPLOAD TO MYGOVERNMENTONLINE.ORG OR OTHERWISE PROVIDE TO THE PERMIT CENTER THE INITIALED, DATED, COMPLETED TPDES CSN OR TPDES NOTICE OF TERMINATION, AS APPLICABLE.
- CITY ISSUES CERTIFICATE OF ACCEPTANCE OR OCCUPANCY.

DETENTION POND NOTES

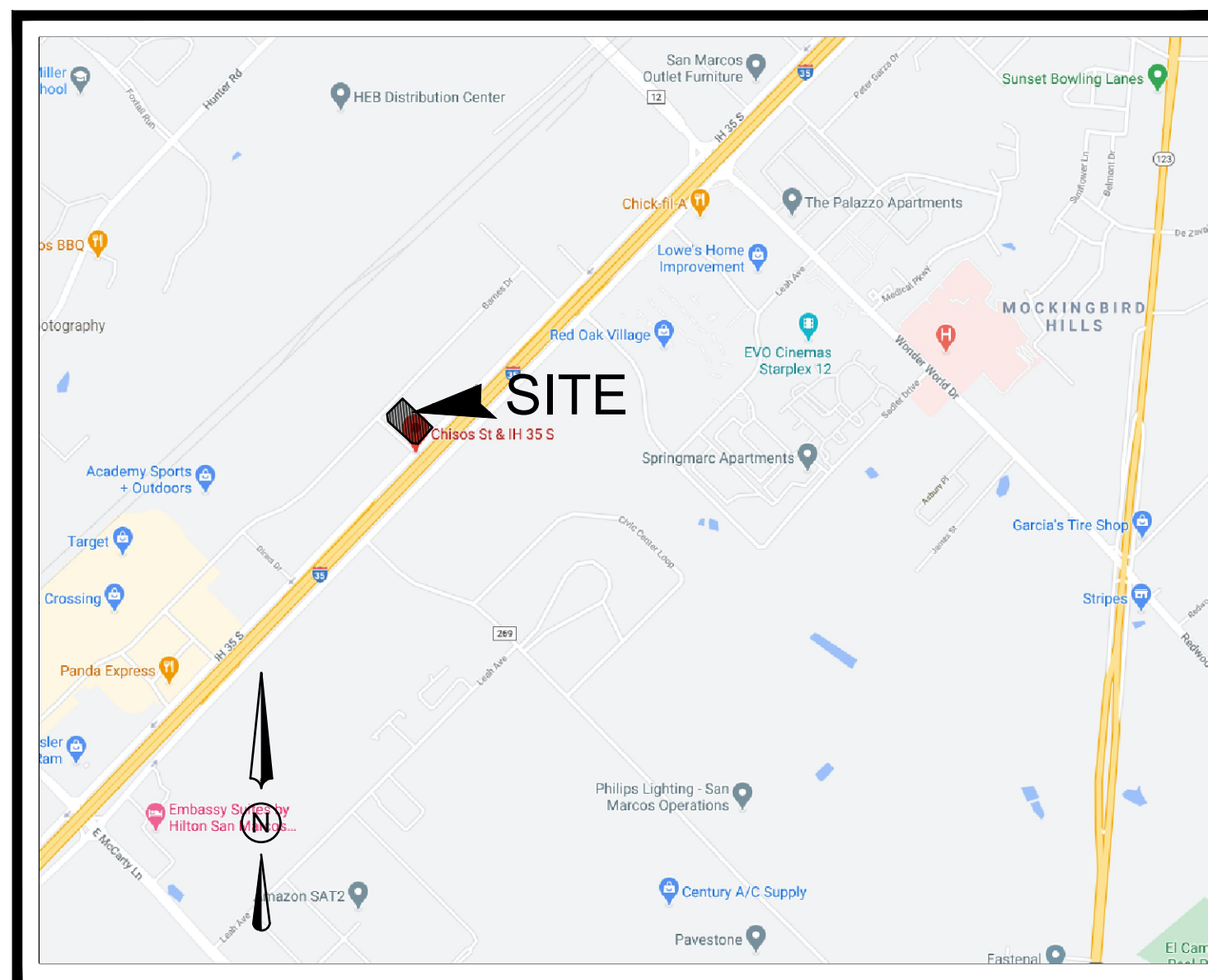
UPON COMPLETION OF THE PROPOSED STORMWATER DETENTION AND/OR WATER QUALITY STRUCTURAL CONTROL(S), AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF ACCEPTANCE OR OCCUPANCY BY THE PERMIT CENTER, THE DESIGN ENGINEER SHALL CERTIFY THE WRITING THAT THE PROPOSED STRUCTURAL CONTROL(S) WAS INSPECTED (INCLUDING DATE AND TIME OF THE INSPECTION) AND CONSTRUCTED IN CONFORMANCE WITH APPROVED PLANS. ANY SUCH STRUCTURAL CONTROL(S) BUILT WITHIN THE CITY OF SAN MARCOS MUST MAINTAIN COMPLIANCE WITH THE CITY'S MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) AND APPLICABLE MS4 ORDINANCES. PRIOR TO RELEASE OF THE CERTIFICATE OF ACCEPTANCE OR OCCUPANCY, A CITY EASEMENT MUST BE SHOWN AROUND ALL STRUCTURAL CONTROLS INCLUDING A MAINTENANCE COVENANT WITH THE CITY LIMITS.

PROJECT CONTACT LIST	
<p>ENGINEER TRIANGLE ENGINEERING LLC 1784 McDermott Dr., Ste. 110 Allen, TX 75013 Andrew Yeoh 214-906-5194</p>	<p>OWNER/DEVELOPER CW 9 SAN MARCOS LLC 11110 ZIMMERMAN LANE AUSTIN, TX 78726 SHAHAN BHAIANI 512-293-4801</p>
<p>SURVEYOR ASH&ASSOCIATES 142 JACKSON LANE, SAN MARCOS, TX 78666 512-392-1719</p>	<p>ARCHITECT A PLUS DESIGN GROUP 2653 SAGEBRUSH DR #200 FLOWER MOUND, TX 75028 TRENT W. CLARK 972-724-4440</p>

SPP PERMIT NO.
WPP2 PERMIT NO.
BP PERMIT NO.

TXDOT NOTES

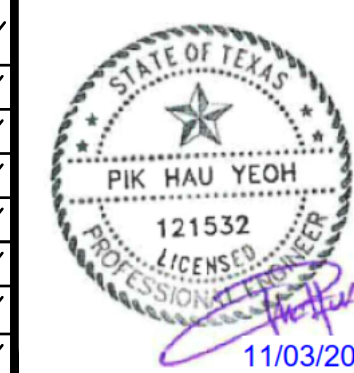
DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY. FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.



VICINITY MAP
N.T.S.



NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



SAN MARCOS **SITE FINAL INSPECTION CHECKLIST** Call Permit Center or email sitefinal@sanmarcostx.gov to schedule 1+ days ahead.

This list is not all-inclusive, but covers most of the items that will be inspected. The list is assessed per the approved plan set and subsequent staff-approved plan addendums. If on-the-ground changes were made without plan revision submission to the City for staff review & approval, Site Final Inspection approval may be delayed while revised plans are submitted & reviewed. Cash fiscal security will be required for listed items that are deferred until after issuance of a temporary certificate of occupancy.

PRIOR TO ISSUANCE OF A TEMPORARY CERTIFICATE OF OCCUPANCY (TCO)

Engineering <small>(All Items as applicable)</small>	CONTACT: Aaron Garcia 512 393-8129
<small>Proper permanent pond/other WQ/drainage-related construction, including berms, discharge controls, etc. Acceptance of Engineer's Letter of Concurrence for pond(s) &/or other WQ/drainage-related item(s). Approval of MS4 required Easement documentation prior to execution/delivery of original recorded document(s).</small>	
Planning <small>(All Items as applicable)</small>	CONTACT: Matthew Johnson 512 393-8238
<small>Correct photometrics, sidewalks, bicycle parking, equivalent dumpster/recycling space & screening. Correct mitigation trees, street trees, other landscaping, plantings/barriers to screen mech./utility vaults. Correct parking layout/stripping, wheel stops, parking screening, identified visitor/compact parking. Compliance with any special/unique PDD or other Planning Agreement site requirements. 911 address assigned for project. Note that tree removals, more/diff. lighting, etc. require Addendums.</small>	
Environmental/SWPPP <small>(All Items as applicable)</small>	CONTACT: Ann Gabriel 512 805-2632
<small>Correct downspout stormwater tie-ins or discharge controls. Correct site surface types (concrete, pavers, asphalt, etc.), including driveway approaches. Temporary water meter on fire hydrant & temporary electric meter assembly removed. Entire site permanently stabilized; disturbed, uncovered areas of at least 70% revegetation growth, evenly distributed, with no large bare areas. Note: Rye alone is not accepted as permanent stabilization. Tree/special feature protection fence & temporary erosion controls removed, except for controls serving unstabilized areas; controls must be removed after 70% revegetation is achieved & approved. Slopes, head walls, behind wheelchair ramps, etc., require retention blankets or equivalent control(s). Construction debris, trash, materials, supplies, equipment, fencing, mobile units, dumpsters, stabilized construction entrances/exits, contractors' trailers & signage, portable toilets, etc. removed. Site & adjacent street(s) cleaned of construction dirt, rocks, etc. that can wash into stormwater systems. Compliant "Finished Construction" Elevation Certificate(s) on current FEMA form expiring Nov 2018.</small>	
TCO/CO Approval <small>(All Items as applicable)</small>	CONTACT: Elizabeth Ehlers 512 805-2640
<small>All outstanding fees paid, including CASH fiscal security (not a bond) for deferred items listed above. Final approval of the Building Official, Fire Marshal, & other City departments.</small>	

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY (CO)

Entire site permanently stabilized as described above; any other deferred/fiscal security items finished. All temporary erosion & sedimentation controls removed, including inlet protection. TPDES Notice of Termination (NOT) submitted to TCEQ, if applicable. TPDES SWPPP Construction Site Notice (CSN) onsite posting removed. Completed CSN or NOT, as applicable, submitted to the City.

4-1-2020

SHEET INDEX	
NO.	DESCRIPTION
C-1.0	COVER SHEET
S	SURVEY
P	RECORD PLAT
RP	REPLAT
	COSM CONSTRUCTION REQUIREMENTS AND NOTES
C-2.0	DEMOLITION PLAN
C-3.0	SITE PLAN
C-3.1	SITE PLAN DETAILS
C-4.0	GRADING PLAN
C-4.1	POND PLAN-1
C-4.2	POND PLAN-2
C-4.3	CUT AND FILL MAP
C-5.0	EXISTING DRAINAGE AREA MAP
C-6.0	POST-DRAINAGE AREA MAP
C-6.1	STORM SEWER PLAN-1
C-6.2	STORM SEWER PLAN-2
C-6.3	WATER QUALITY PLAN
C-6.4	STORM SEWER DETAILS
C-7.0	EROSION CONTROL PLAN
C-7.1	EROSION CONTROL DETAILS
C-8.0	PAVING PLAN
C-8.1	PAVING DETAILS-1
C-8.2	PAVING DETAILS-2
C-8.3	PAVING DETAILS-3
C-8.4	PAVING DETAILS-4
C-9.0	UTILITY PLAN
C-9.1	UTILITY DETAILS-1
C-9.2	UTILITY DETAILS-2
L-1.0	LANDSCAPE PLAN - 1
L-2.0	LANDSCAPE PLAN - 2
L-3.0	IRRIGATION PLAN - 1
L-4.0	IRRIGATION PLAN - 2

PERMIT NUMBER 2021-35249
PERMIT NUMBER 2021-35250

COVER SHEET	
CAR WASH & GAS STATION	
IH 35 & CHISOS	
CITY OF SAN MARCOS	
HAYS COUNTY, TEXAS 78666	
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2	

TRIANGLE ENGINEERING LLC

T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

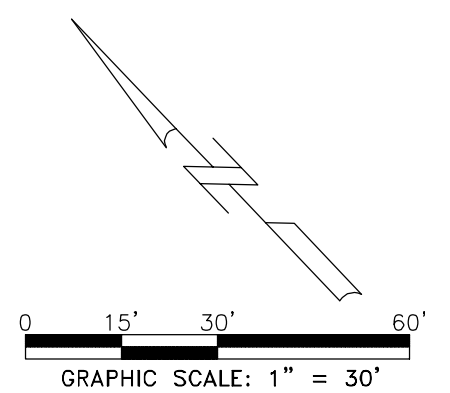
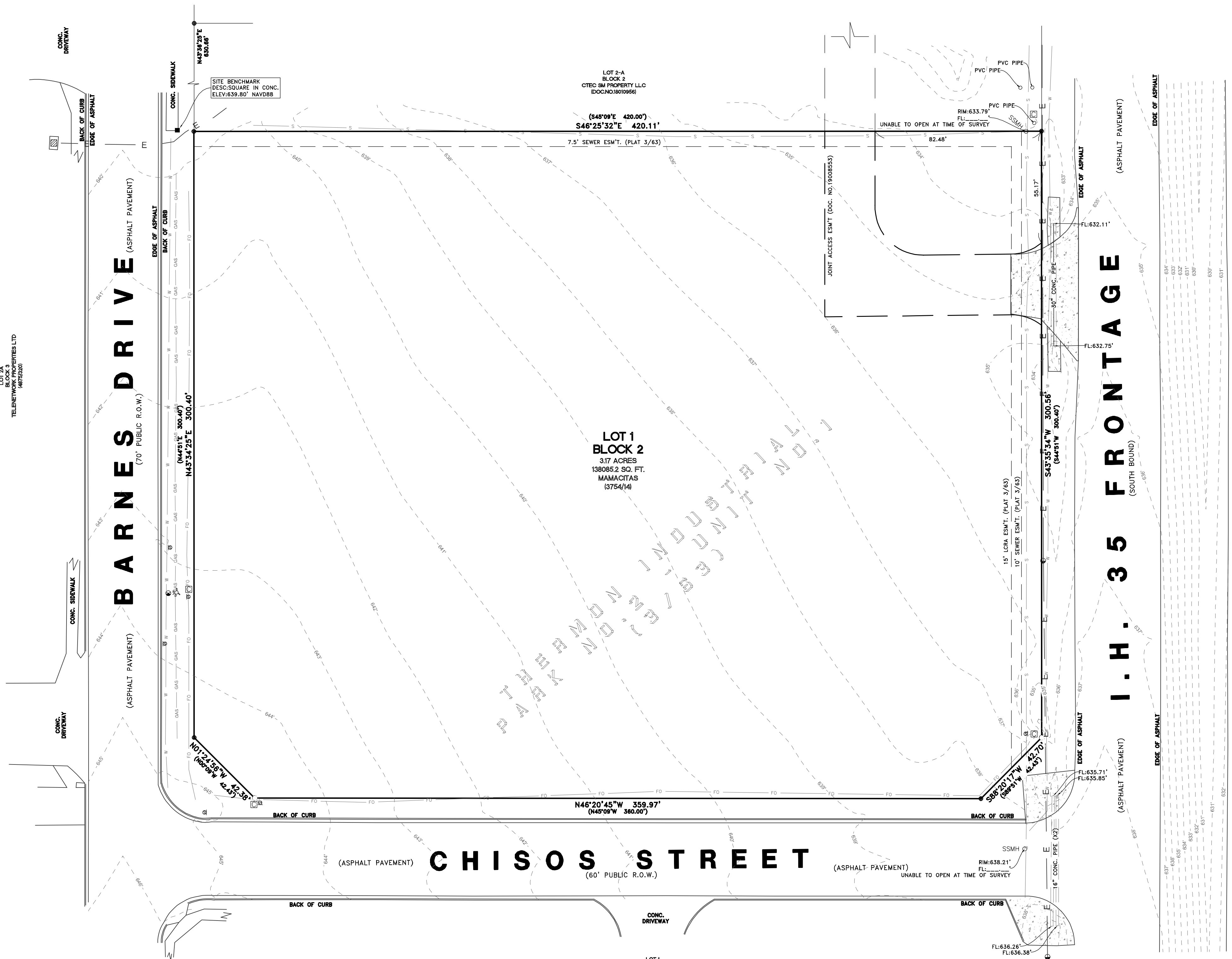
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-1.0

TX. P.E. FIRM #11525

J. M. VERAMENDI, JR.
 THERMON INDUSTRIAL PARK NO. 2
 UNIT NO. 1
 (15/381)

REPLAT OF LOT 2
 THERMON INDUSTRIAL PARK NO. 2
 UNIT NO. 1
 (15010084)



- LEGEND**
- IRON PIPE FOUND
 - IRON ROD SET
 - CAPPED "RPLS 5687"
 - x PK FOUND
 - CALCULATED POINT
 - CONCRETE MONUMENT
 - ⊕ FIRE HYDRANT
 - ⊕ WATER METER
 - ⊕ WATER VALVE
 - ⊕ CLEANOUT
 - ⊕ GAS VALVE
 - ⊕ POWER POLE
 - ⊕ OVERHEAD ELECTRIC LINE
 - ⊕ DOWN GUY
 - ⊕ ELECTRIC METER
 - ⊕ LIGHT POLE
 - ⊕ WOOD FENCE
 - ⊕ CHAIN LINK FENCE
 - ⊕ WIRE FENCE
 - ⊕ METAL FENCE
 - ⊕ GAS METER
 - ⊕ TELEPHONE PEDESTAL
 - ⊕ CABLE PEDESTAL
 - ⊕ SANITARY SEWER MANHOLE
 - ⊕ STORM SEWER MANHOLE
 - ⊕ ELECTRIC GROUND
 - ⊕ CONTROL POINT
 - ⊕ UNDERGROUND UTILITY MARKER SIGN
 - ⊕ UNDERGROUND UTILITY TEST STATION SIGN POST
 - ⊕ ELECTRIC TRANSFORMER
 - ⊕ TRAFFIC SIGNAL BOX
 - ⊕ P.U.E. PUBLIC UTILITY EASEMENT
 - ⊕ D.E. DRAINAGE EASEMENT
 - ⊕ B.L. BUILDING LINE
 - ⊕ (BRC-DIST.) RECORD CALL
 - ⊕ EXISTING GAS
 - ⊕ EXISTING SANITARY SEWER
 - ⊕ EXISTING FIBER OPTIC
 - ⊕ EXISTING WATER

I.H. 35

(300' PUBLIC R.O.W.)

- TITLE NOTES:**
- 1) ACCORDING TO THE SCHEDULE B OF THE COMMITMENT FOR TITLE, OF # 2030795-COM, EFFECTIVE DECEMBER 11, 2020 BY TITLE RESOURCES GUARANTY COMPANY, THE PROPERTY IS SUBJECT TO THE FOLLOWING:
 - 2) THIS LOT IS SUBJECT TO THE RESTRICTIONS RECORDED IN VOLUME 2806, PAGE 494, VOLUME 3754, PAGE 1, AND DOCUMENT NO. 19008553, OFFICIAL PUBLIC RECORDS, HAYS COUNTY, TEXAS.
 - 3) EASEMENT AS SHOWN ON THE PLAT AND DEDICATION SET OUT IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS; PURPOSE: SEWER LOCATION; 10 FEET IN WIDTH ALONG THE SOUTHEAST PROPERTY LINE. (SHOWN HEREON)
 - 4) EASEMENT AS SHOWN ON THE PLAT AND DEDICATION SET OUT IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS; PURPOSE: SEWER LOCATION; 7.5 FEET IN WIDTH ALONG THE NORTHEAST PROPERTY LINE. (SHOWN HEREON)
 - 5) EASEMENT AS SHOWN ON THE PLAT AND DEDICATION SET OUT IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS; PURPOSE: LOCAL LOCATION; 15 FEET IN WIDTH PARALLEL AND ADJACENT TO THE FOREMENTIONED TO FOOT SEWER EASEMENT ALONG THE SOUTHEAST PROPERTY LINE. (SHOWN HEREON)
 - 6) JOINT ACCESS EASEMENT TRACT 1 AND TRACT 2; TERMS, CONDITIONS, AND STIPULATIONS IN THE JOINT USE ACCESS AGREEMENT, RECORDED VOLUME 3754, PAGE 18, AS FURTHER AFFECTED IN DOCUMENT NO. 19008553, OFFICIAL PUBLIC RECORDS, HAYS COUNTY, TEXAS. (SHOWN HEREON)

TO: PURCHASER: EMBARK ENERGY LLC, & CW 9 SAN MARCOS LLC
 LENDER: FALCON INTERNATIONAL BANK
 TITLE CO: INDEPENDENCE TITLE
 OF NO: 2030795-COM
 ADDRESS: TO BE DETERMINED

GENERAL NOTES:

- 1) ACCORDING TO THE NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 482090477F, DATED SEP. 02, 2005, THIS LOT IS LOCATED IN ZONE "X" (UNSHADED), WHICH IS AN AREA OUTSIDE THE FEMA DESIGNATED 100-YEAR FLOODPLAIN, AND IN LOMAR 18-06-15A-SP, EFFECTIVE APR. 4, 2019.
- 2) BEARING BASIS DERIVED BY GPS MEASUREMENTS ADJUSTED BY HARN (HIGH ACCURACY REFERENCE NETWORK) & PROJECTED TO TEXAS STATE PLANE COORDINATES & NAD83 (HORIZONTAL), NAVD83 (VERTICAL).

REFERENCE BENCHMARK: SAN MARCOS GPS NO. 1
 DESCRIPTION: ALUMINUM DISK SET IN CONCRETE
 ELEVATION: 607.64' NAVD83.

ALTA/NSPS LAND TITLE SURVEY OF:
 LOT 1 - BLOCK 2 - 3.17 ACRES
 THERMON INDUSTRIAL PARK NO. 2 - UNIT NO. 1
 J.M. VERAMENDI ABS. NO. 17
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS.

TO: FALCON INTERNATIONAL BANK, EMBARK ENERGY LLC, INDEPENDENCE TITLE AND TITLE RESOURCES GUARANTY COMPANY (OF 2030795-COM)

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2 (TO BE DETERMINED), 3, 4, 5, 8 (VACANT), 11 (OBSERVED EVIDENCE), AND 13, OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JULY 22/2020.



Richard H. Taylor, RPLS
 REGISTERED PROFESSIONAL LAND SURVEYOR
 NUMBER 3888 STATE OF TEXAS
 © ASH & ASSOCIATES, L.L.C.

NO.	REVISION	DATE
1	SO. FEET	MAM 08/04/20
2	COMMITMENT FOR TITLE	RHT 07/19/21
3	ALTA	RHT 07/19/21

ASH & ASSOCIATES

142 JACKSON LANE
 SAN MARCOS, TEXAS 78666
 (512) 392-1719
 ashandassociates.net

Supervising: 00847-00
 Architecture: 1720240

Serving the Community of Texas

DRAWING INFORMATION

DESIGNED BY:	MAM	DATE:	07/23/2020
DRAWN BY:	MAM	PROJECT NO.:	20-7564
APPROVED BY:	RHT	PLOT SCALE:	1" = 30'
FILE NAME:	MAMACITAS		

ALTA/NSPS LAND TITLE SURVEY
 LOT 1 - BLOCK 2 - 3.17 ACRES
 THERMON INDUSTRIAL PARK NO. 2 - UNIT NO. 1
 J.M. VERAMENDI ABS. NO. 17
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS.

DRAWING	LOT 1
SHEET:	1
OF	1

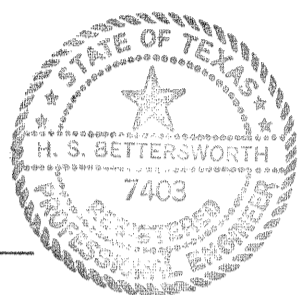
THIS SUBMITTAL PREPARED BY

H.S. Bettersworth & Associates, Inc.,
Engineers Surveyors
315 S. Crockett St., Seguin, TX. 78155
512 - 379-5552

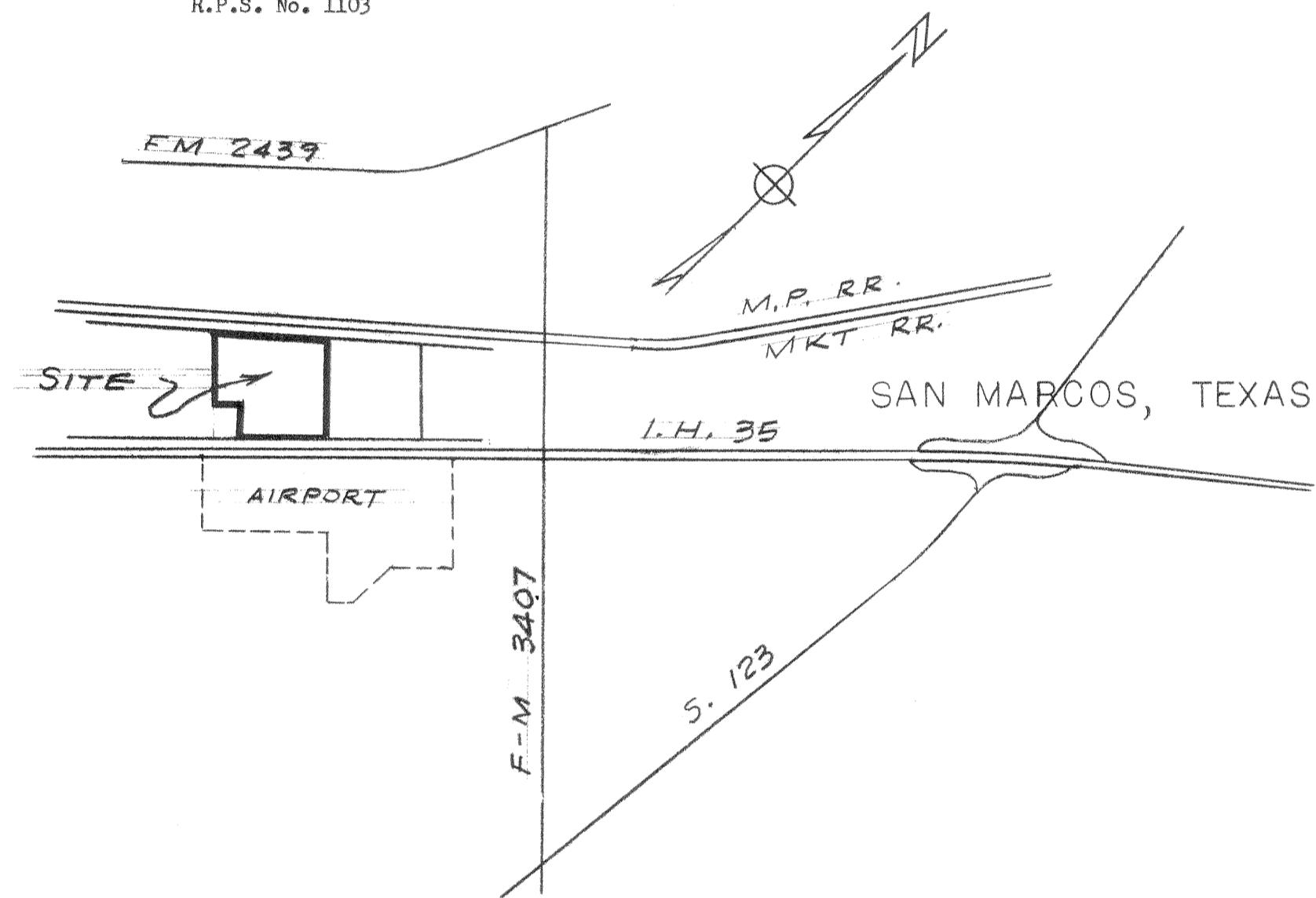
KNOW ALL MEN BY THESE PRESENTS:

I, H.S. Bettersworth, P.E. and R.P.S. in the state of Texas,
do hereby certify the following:

This plat of Thermon Industrial Park No. 2, shown on sheet 2
hereof, is an accurate survey made on the grounds and under
my supervision. All corners of all tracts are marked with
iron stakes except as noted.
Proper engineering consideration has been given to the plat
and all features of same are in compliance with the City of
San Marcos subdivision ordinance.



H.S. Bettersworth
H.S. Bettersworth
P.E. No. 7403
R.P.S. No. 1103



VICINITY MAP
1" = 2000'

Approved this the 18th day of MAY
1984 by the Planning and Zoning Commission
of the city of San Marcos, Texas.

Bill S. Moore
Chairman

Joe C. Henge
Secretary

APPROVED FOR ACCEPTANCE

3-9-84
Date *Joe C. Henge*
Director of Planning

3-23-84
Date *Daniel Brown (Acting)*
Director of Public Works

Accepted and Authorized for record by the
Planning Commission, City of San Marcos, Texas.
This the 18th day of MAY, 1984.

Joe C. Henge
Secretary Chairman

STATE OF TEXAS
COUNTY OF HAYS

KNOW ALL MEN BY THESE PRESENTS that we the undersigned, Knox
Pitzer President of Indeco Corporation and Jerry Fruit general
partner of Chisos Investments, a Partnership, said Partnership
being the owner of 13.03 acres of land, part of a 53.93 acre
tract conveyed by W.P. Donalson, Jr., to Thermon Industrial
Corporation (now Indeco Corporation) by deed dated Sept. 19, 1980
and recorded in volume 347 at page 629 of the deed records of
Hays County, Texas, and said Corporation being the owner of
the residue of said 53.93 acres, said 13.03 acres and said
residue comprising the land shown on sheet 2 hereof, do hereby
dedicate this plat as their subdivision to be known as
Thermon Industrial Park No. 2 and do hereby dedicate to the use
of the public all streets shown thereon and all easements shown
thereon for the purpose of constructing and maintaining
utilities and drainage and not to the public in general.

Executed this 6th day of MARCH 1984

Indeco Corporation Chisos Investments

By: *Knox Pitzer* By: *Jerry Fruit*
President General Partner

STATE OF TEXAS
COUNTY OF HAYS

Before me, the undersigned authority, on this day personally
appeared Knox Pitzer, President of Indeco Corporation, and
Jerry Fruit, general partner of Chisos Investments, known to
me to be the persons whose names are subscribed to the
foregoing instrument, and acknowledged to me that they
executed the same for the purposes and considerations therein
expressed and in the capacities therein stated and as the
acts and deeds of said Corporation and said Partnership.

Given under my hand and seal of office this the 6th day
of MARCH 1984.

Paul E. Wilson
Notary Public in and for
Hays County, Texas

My commission expires 7-13-84

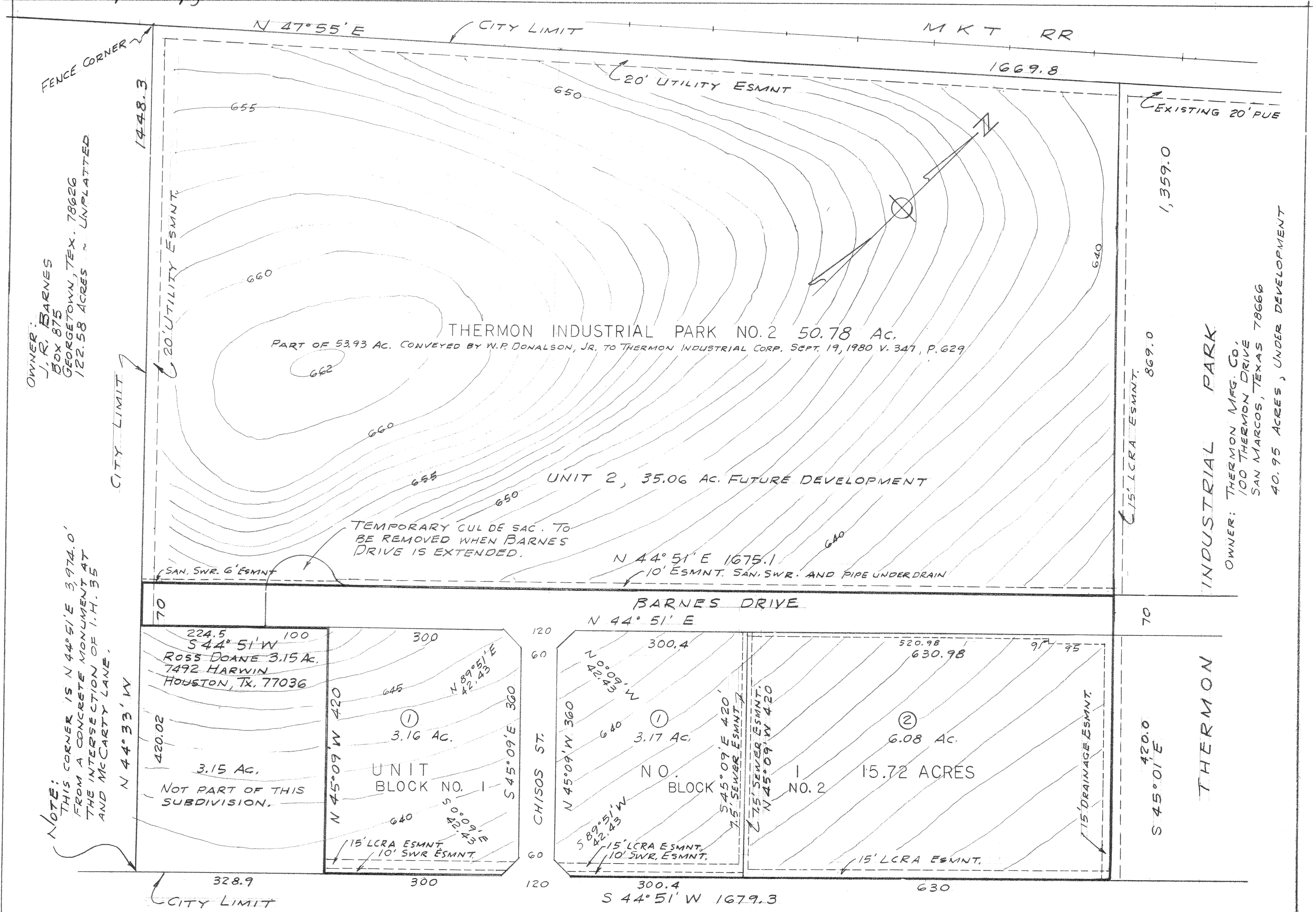
STATE OF TEXAS
COUNTY OF HAYS

I, *Myra B. Clayton* County Clerk
of said county, do hereby certify that the foregoing
instrument of writing with its certificate of
authentication was filed for record in my office on
the 23 day of MARCH, 1984, at 11 A.M., and duly recorded
the 23 day of MARCH, 1984, at 11 A.M., in the records
of PLATS of said county in book volume
3 on page 63-64 in testimony whereof
witness my hand and official seal of office
this 23 day of MARCH, 1984.

Myra B. Clayton
County Clerk
Hays County, Texas. *Deputy*

184080

THERMON INDUSTRIAL PARK NO. 2
UNIT NO. 1
JM VERAMENDI SURVEY NO. 1
SAN MARCOS HAYS COUNTY TEXAS



OWNER:
J. R. BARNES
 BOX 875
 GEORGETOWN, TEX. 78626
 122.58 ACRES ~ UNPLATTED

NOTE:
 THIS CORNER IS N 44° 51' E 3,974.0'
 FROM A CONCRETE MONUMENT AT
 THE INTERSECTION OF I.H. 35
 AND McCARTY LANE.

CITY LIMIT

SAN. SWR. 6' ESMNT

THERMON INDUSTRIAL PARK NO. 2 50.78 AC.
 PART OF 53.93 AC. CONVEYED BY W.P. DONALSON, JR. TO THERMON INDUSTRIAL CORP. SEPT. 19, 1980 V. 347, P. 629

UNIT 2, 35.06 AC. FUTURE DEVELOPMENT

TEMPORARY CUL DE SAC. TO
 BE REMOVED WHEN BARNES
 DRIVE IS EXTENDED.

N 44° 51' E 1675.1
 10' ESMNT. SAN. SWR. AND PIPE UNDER DRAIN

BARNES DRIVE

224.5 100
 S 44° 51' W
 ROSS DOANE 3.15 AC.
 7492 HARWIN
 HOUSTON, TX, 77036

3.15 AC.
 NOT PART OF THIS
 SUBDIVISION.

UNIT
 BLOCK NO. 1

NO.
 BLOCK

15.72 ACRES

328.9
 CITY LIMIT

I. H. 35 300' R/W

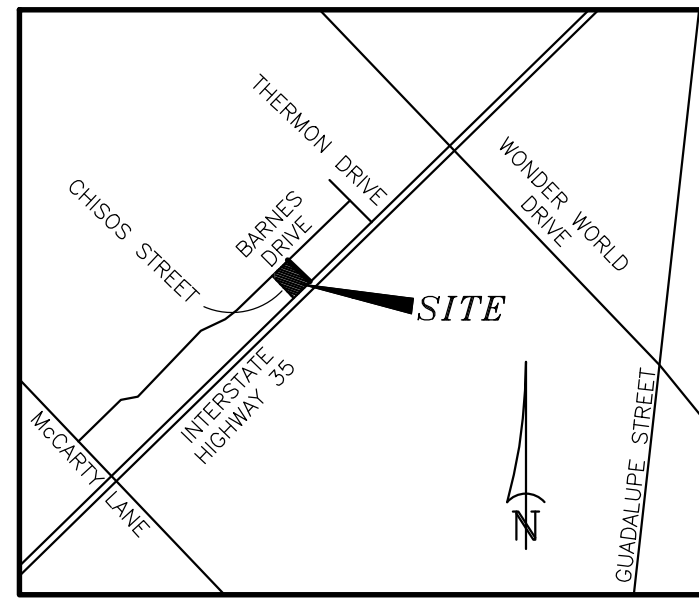
INDUSTRIAL PARK

OWNER: THERMON MFG. CO.
 100 THERMON DRIVE
 SAN MARCOS, TEXAS 78666
 40.95 ACRES, UNDER DEVELOPMENT

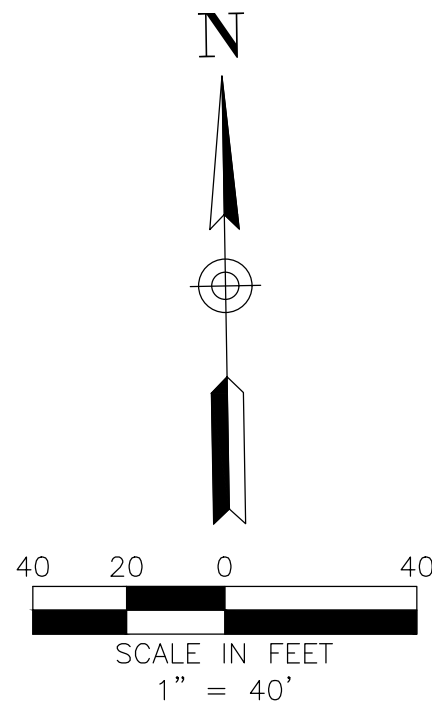
THERMON

THERMON INDUSTRIAL PARK NO. 2
 UNIT NO. 1
 J.M. VERAMENDI SURVEY NO. 1
 SAN MARCOS, HAYS COUNTY, TEXAS

SCALE: 1" = 100'



VICINITY MAP
NOT TO SCALE



The Basis of Bearings is from the Texas State Plane Coordinate System, NAD83, North Central Zone as derived from GPS observations using the Altimera RTK Network and adjusted to surface using a surface scale factor of 1.00013.

No.	Bearing	Distance
L1	S 88°34'03" W	42.42'
L2	S 01°25'57" W	42.43'
L8	N 46°25'57" W	39.22'
L9	N 43°40'07" E	4.36'
L10	N 77°36'08" W	18.14'
L11	N 46°25'57" W	38.65'
L12	S 77°36'08" E	57.04'
L13	N 43°40'07" E	16.53'
L14	S 46°25'32" E	19.67'
L15	S 43°35'46" W	60.40'
L17	N 46°25'57" W	27.03'
L18	S 46°25'57" W	39.22'
L19	S 88°34'03" W	21.09'
L20	S 46°25'57" W	38.65'
L21	N 77°36'08" W	101.50'
L22	S 43°36'17" W	2.37'
L23	S 46°23'43" E	3.00'
L24	S 43°36'17" W	5.00'
L25	N 46°23'43" W	3.00'
L26	S 43°36'17" W	104.06'
L27	N 46°20'21" W	28.11'
L28	N 01°52'16" W	27.81'
L29	N 43°34'25" E	110.04'
L30	S 46°25'32" E	39.36'
L31	S 77°36'08" E	86.41'
L32	S 46°25'57" E	10.00'
L33	S 43°34'03" W	31.40'
L34	N 46°25'57" W	10.00'
L35	N 43°34'03" E	31.40'
L36	S 46°25'32" E	13.09'
L37	S 02°46'50" W	4.46'
L38	S 88°34'03" W	23.26'
L39	N 43°34'03" E	161.93'
L40	S 46°25'57" E	16.45'
L41	S 43°34'01" W	145.48'
L42	S 43°34'03" W	154.93'
L43	N 46°25'57" W	16.45'
L44	N 43°34'03" E	42.44'
L45	N 65°58'41" E	14.30'
L46	N 43°34'03" E	99.27'
L47	S 46°25'57" E	11.00'
L48	S 43°35'47" W	17.27'
L49	N 46°25'32" W	238.66'
L50	S 46°25'32" E	232.47'
L51	S 43°39'15" W	132.05'
L52	S 43°39'15" W	157.17'
L53	N 46°25'32" W	17.48'
L54	S 42°57'24" W	16.35'
L55	S 88°34'03" W	48.28'
L56	N 46°25'57" W	332.35'
L57	S 43°34'03" W	10.00'

J.M. VERAMENDI SURVEY
ABSTRACT No. 1

LOT 1, BLOCK 1
THERMON INDUSTRIAL PARK NO. 2
UNIT NO. 1
VOL. 3, PG. 64
O.P.R.H.C.T.
NCO BUILDING I LTD.
VOLUME 2238, PAGE 777
O.P.R.H.C.T.

LEGEND	
	BOUNDARY LINE
	ADJOINER BOUNDARY LINE
	EASEMENT LINE (AS NOTED)
	NOT TO SCALE
	SET IRON ROD (AS NOTED)
	FOUND IRON ROD (AS NOTED)
	PUE PUBLIC UTILITY EASEMENT
	CONTROL MONUMENT
	CITY OF SAN MARCOS
	PLAT RECORDS
	HAYS COUNTY, TEXAS
	OFFICIAL PUBLIC RECORDS
	HAYS COUNTY, TEXAS

CURVE TABLE					
Curve No.	Delta	Radius	Length	Chord Bearing	Chord
C1	90°00'00"	19.50'	30.63'	N 88°34'28" E	27.58'
C2	90°01'45"	20.00'	31.43'	N 01°24'40" W	28.30'
C3	89°58'38"	20.00'	31.41'	N 88°35'09" E	28.28'
C4	50°03'39"	40.01'	34.95'	N 71°27'22" W	33.85'
C5	50°19'09"	30.00'	26.35'	S 71°19'37" E	25.51'
C6	90°04'47"	20.00'	31.45'	S 01°23'09" E	28.31'
C7	66°23'34"	20.00'	23.18'	S 76°51'02" W	21.90'
C8	23°31'39"	20.00'	8.21'	N 58°11'21" W	8.16'
C9	90°54'59"	45.01'	71.41'	N 88°24'53" E	64.15'

- GENERAL NOTES**
- The purpose of this replat is to create two (2) lots out of the existing (1) for two different future developments and to dedicate a new drainage and water easement.
 - Sidewalks will be required along all frontages at the time of development.
 - Selling a portion of this addition by metes and bounds is a violation of city subdivision ordinance and state platting statutes and is subject to fines and withholding of utilities and building certificates.
 - All drainage easements will be privately maintained.
 - No portion of the subject property shown hereon lies within the 100 year flood hazard area according to the Flood Insurance Rate Map, Community Panel No. 48209C0477F, dated September 2, 2005. The subject property is located in the area designated as Zone "X", (areas determined to be outside the 0.2% annual chance floodplain).
 - Shared responsibility of Lot to Lot drainage by owners.
 - This property is in the San Marcos River Protection Zone.
 - The drainage easement is for lot to lot drainage and water quality system.

SURVEYOR'S CERTIFICATION

KNOW ALL MEN BY THESE PRESENTS:

That I, Mark Allan Nace, a Registered Professional Land Surveyor licensed in the State of Texas, do hereby certify that this Plat is true and correct and was prepared from an actual survey made under my supervision on the ground.

PRELIMINARY, THIS SURVEY SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

Mark Allan Nace
Registered Professional Land Surveyor
Texas Registration No. 5539

Date: _____

State of Texas §
County of Dallas §

BEFORE ME, the undersigned authority, a notary public in and for the State of Texas, on this day personally appeared Mark Allan Nace, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same in the capacity therein stated.

Given under my hand and seal of office this _____ day of _____, 2022

Notary Public in and for the State of Texas

OWNER'S ACKNOWLEDGEMENT

State of Texas §
County of Hays §

Whereas, CW 9 SAN MARCOS LLC AND EMBARK ENERGY LLC, do hereby certify that I am the legal owner of the 3.17 acre tract of land shown on this plat, and designated as Theron Industrial Park No. 2, Unit 1, Lot 1, Block 2, an addition to City of San Marcos, Hays County, Texas, do hereby replat this property to be known as Theron Industrial Park No. 2, Unit 1, Lots 1-A and 1-B and dedicate to the use of the public all streets, alleys, park, watercourses, drains, and public places shown on this plat.

CW 9 SAN MARCOS LLC and EMBARK ENERGY LLC

State of Texas §
County of Hays §

BEFORE ME, the undersigned Notary Public in and for the State of Texas, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purpose and considerations therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this _____ day of _____, 2022

Notary Public in and for the State of Texas

State of Texas §
County of Hays §

BEFORE ME, the undersigned Notary Public in and for the State of Texas, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purpose and considerations therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this _____ day of _____, 2022

Notary Public in and for the State of Texas

**CITY OF SAN MARCOS
CERTIFICATE OF APPROVAL**

Approved and Authorized to be recorded on the _____ day of _____, 2022 by the Planning and Zoning Commission of the City of San Marcos.

Chairman, Planning and Zoning Commission _____ Date _____

Director of Development Services _____ Date _____

Recording Secretary _____ Date _____

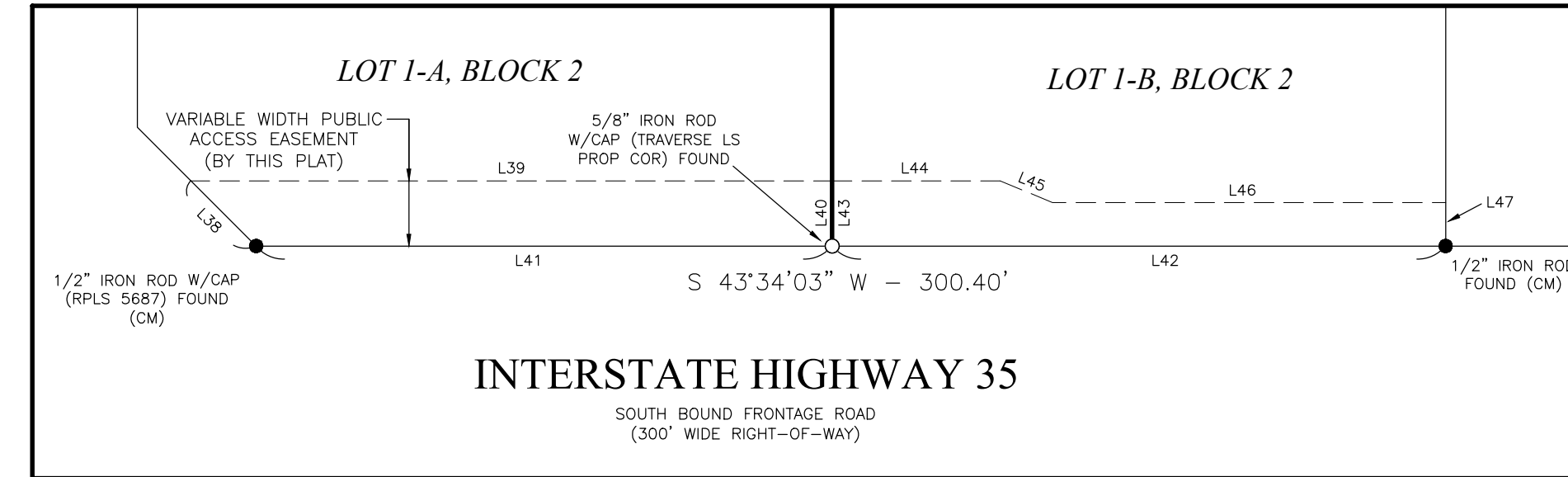
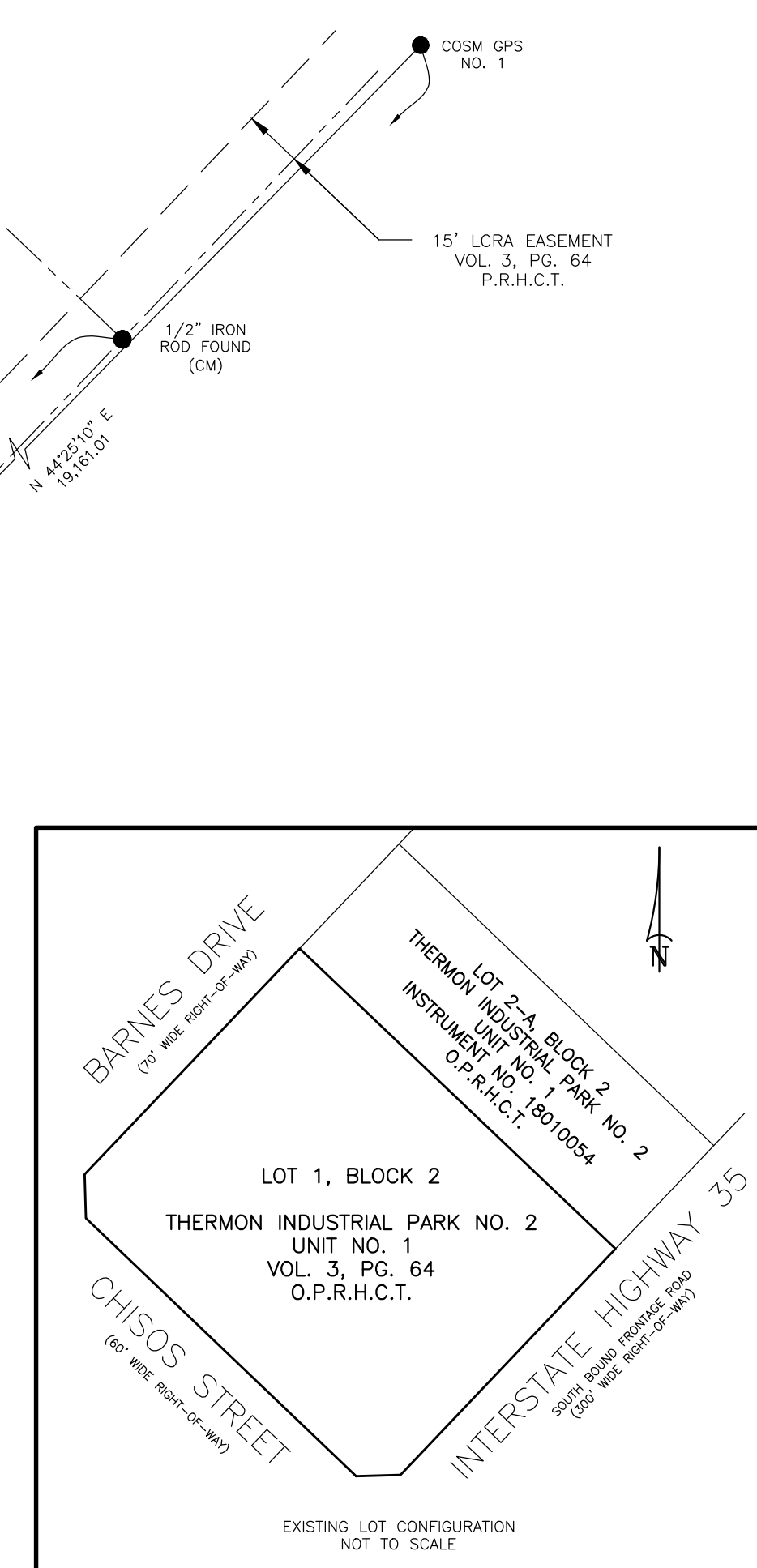
CIP and Engineering _____ Date _____

State of Texas §
County of Hays §

I, Elaine Cardenas, County Clerk of Hays County, Texas, do hereby certify that the foregoing instrument of writing with its certificate of authentication was filed for record in my office on the _____ day of _____ A.D. 2022 at _____ o'clock _____ in the plat records of Hays County, Texas, under document number _____.

Witness my hand and seal of office, this _____ day of _____, A.D. 2022.

Elaine Cardenas, County Clerk
Hays County, Texas



**REPLAT
LOT 1-A & LOT 1-B, BLOCK 2
THERMON INDUSTRIAL
PARK NO. 2, UNIT 1
BEING A REPLAT OF
LOT 1, BLOCK 2
THERMON INDUSTRIAL PARK
NO. 2, UNIT NO. 1
BEING 3.17 ACRES SITUATED IN THE
J.M. VERAMENDI SURVEY, ABSTRACT NO. 1
AN ADDITION TO THE
CITY OF SAN MARCOS, HAYS COUNTY, TEXAS**



14200 Midway Road, Suite 130, Dallas, TX 75244 | T: 469.784.9321
W: TraverseLandSurveying.com | Texas Firm No. 10194631

SURVEYOR
Name: Traverse Land Surveying, LLC
Address: 14200 Midway Road, Suite 130
Dallas, Texas, 75244
Contact Name: Mark Nace
Phone: 469-784-9321

OWNER/DEVELOPER
Name: CW 9 San Marcos LLC
Address: 11110 Zimmerman Lane
Austin, Texas 78726
Contact Name: Shahan Bhaidani
Phone: 512-293-4801

Surveying | Construction Staking | Platting
Date: July 01, 2021 Project No.: TR-25-21

**CITY OF SAN MARCOS
DEVELOPMENT SERVICES
CONSTRUCTION REQUIREMENTS AND NOTES**

Revised Date: 06-29-2018
The following City of San Marcos (COSM) requirements supersede, as a minimum requirement, any and all non "redline" comments, specifications, or details listed on the plan.

Plan Review and Revisions

- The owner, contractor and representatives are responsible for complying with the most current local, state and federal laws, rules and ordinances.
- The COSM review does not authorize any violations of details, specification, standard products ordinances or laws of the COSM. No code violations listed, drawn, or described in this plan, and/or otherwise installed, manufactured or built, are "approved" by the COSM.
- A copy of COSM approved plans and any approved revisions bearing a review seal from the COSM must be available on-site at all times.
- During construction, plan changes or revisions must be uploaded into MyPermitNow for staff review prior to the changes being made. Final Certificate of Occupancy or Certificate of Acceptance will NOT be issued until all changes have been documented and approved.
- COSM adopted codes with local amendments:

- International Building Code -2015
- International Energy Code - 2009/2015
- International Plumbing Code-2015
- National Electric Code -2014
- International Mechanical Code-2015
- International Fire Code -2015
- International Fuel Gas Code-2015
- San Marcos Land Development Code (as amended)
- Smart Code (as amended)
- Code SMTX (as amended)
- International Property Maintenance Code-2015
- International Swimming Pool and Spa Code-2015

Accessory-Permits and Activities

1. Neither the review of these plans, nor the issuance of a Building or Site Plan Permit, authorizes accessory permits. The owner is responsible for completing the following accessory permits or activities: (verify with the department or division listed below, even if depicted within this plan by the design professional):

- Addressing (Permit Center)
- Assignment of Building Numbers (Permit Center)
- Controlled Access Gates (Fire Prevention)
- Any Fire Protection System (fire alarm, sprinkler, hood system)] (Fire Prevention)
- Any Storage Tanks (Fire Prevention)
- High Piled Combustible Stock (Fire Prevention)
- Any Sign and/or Sign Standard (Permit Center)
- Irrigation (Permit Center)
- Fence (Permit Center)
- On-Site Sewage Facilities (OSSF's) (Code Compliance)
- Commercial Swimming pools, spa, & Public Interactive Water Feature (PIWF's) (Permit Center/Code Compliance)
- Backflow Prevention Devices (Water Department)
- Street Closure/Traffic Control Plans (Public Services-Transportation Division)
- Right of Way "ROW" (Public Services-Transportation Division)
- EPA or TCEQ permits (State/Permit Center)
- Floodplain Permit (Permit Center)

2. Any portion of work, including, but not limited to, traffic control, which lies in Texas Department of Transportation (TxDOT), Union Pacific Railroad (UPRR) or County property or right of way, shall be permitted and approved by that authority. All required permits shall be secured by the owner or contractor from COSM and any other appropriate authority. A copy of all permit must be on site and available to City Inspector on request.

3. Contractor shall notify the Engineering Department (512-393-8130) and setup a consultation with Engineering Inspector at least 2 weeks before connection with the City water/wastewater system.

4. Contractor shall submit a road closure permit application and setup a consultation with Engineering Inspector Engineering Department (512-393-8130) at least 2 weeks before any lane or road closure.

General Construction Notes

1. Pre-Construction Meeting - Site and/or Building contractor(s) is/are responsible for scheduling a pre-construction meeting with COSM inspector(s) by contacting the Permit Center (512-805-2630) prior to any site work, including demolition. For Public Improvement Construction Projects (PICP's) contact the Engineering Department at (512-393-8130) at capital_imp_info@sanmarcostx.gov.

2. Site Requirements - The general contractor, owner, and subcontractors are responsible for maintaining a safe and clean work site.

3. Any reference in this section to water, wastewater, electric or other public utility is meant to refer to the utility of certification or Authority Having Jurisdiction.

4. Pre-Construction Video - A video in Windows media format or equivalent of the complete site conditions for all **Public Improvement Construction Projects** (and as requested for Site Plan Projects) is required prior to construction. Provide a copy to the COSM upon request.

5. Inspections - Inspections can be scheduled with the respective divisions by contacting them at:

- Building Inspections www.myperrmitnow.org
- Fire Prevention/Inspections www.myperrmitnow.org
- Site Final Inspections sitefinal@sanmarcostx.gov
- Engineering Inspections 512-393-8130
- PICP Inspections 512-393-8130
- Code Compliance 512-393-8440 (Food, Pool permits, etc..)

6. Trash - Approved trash containment must be provided for each lot under construction. Commercial solid waste haulers servicing construction sites must hold a permit from the Community Enhancement Infillatives Manager and are subject to commercial solid waste hauler fees.

7. Open Burning - Burning is prohibited in the COSM limits.

8. Blasting - Blasting is prohibited in the COSM limits.

9. Construction Noise-Construction noise, declared a nuisance under COSM ordinance, is not permitted between 9:00 p.m. and 7:00 a.m.

10. Weekend and Holiday work - Weekend and Holiday work is not allowed within a public right-of-way without prior approval.

11. Facilities - Maintained portable bathroom facilities must be provided with a minimum of one bathroom unit per one and two family residential lots. All construction sites are required to provide one bathroom unit per ten construction persons on the job.

12. Access - Temporary access driveways on the job site (aka stabilized construction entrances/exits) must comply with the current City detail, including curb protection. No mud, rock, or debris permitted on any off site roadway. The general contractor and/or owner are responsible for immediately removing any debris on roadways caused by construction.

13. Combustible Construction -An all-weather surfaced roadway and working fire hydrant(s) are required to be installed on property prior to the construction of combustible material. Road base alone is not acceptable.

14. Safety - The general contractor, subcontractors and the owner are responsible for maintaining a safe construction operation at all times. All federal OSHA and state details, as well as local codes, shall be adhered to during the construction phase.

15. Address - The site, separate buildings, electrical disconnects, and/or temporary construction trailers must have an address visible from the street or roadway.

16. Required Postings - All COSM and State permits must be posted facing the street or roadway (where practical). Permanent marker is not an approved marking device.

17. Form Survey Requirements- Prior to requesting a foundation inspection by the Building Inspector, a Form Survey must be completed by a State Registered Land Surveyor validating building location to COSM setback requirements.

18. Floodplain Elevation Certificates - Where and when required, a "Building Under Construction" Elevation Certificate must be completed by a State Registered Land Surveyor (or State Registered Engineer or Architect) on FEMA form expiring Nov 2018 and submitted to the Permit Center at least 36 hours prior to foundation pouring to allow time for review and acceptance. A Land Surveyor's "Finished Construction" Elevation Certificate must also be submitted to and accepted by the Floodplain Administrator before Temporary "Certificate of Occupancy" will be issued.

19. If any geologic or manmade environmental feature is discovered during construction, notify Texas Commission on Environmental Quality (TCEQ) and the COSM Development Services within 24 hours or as soon as practicable. The contractor is required to provide compliance documentation as applicable.

20. EPATCEQ - Any required EPA or TCEQ permit(s) is/are separate permit(s) and the responsibility of the contractor. Provide a copy of such permit(s) to the Permit Center.

21. Abandoned wells must be capped or properly abandoned according to the Administrative Rules of the Texas Department of Licensing and Regulation (TDLR), 16 Texas Administrative Code (TAC), Chapter 76. A plugging report must be submitted (by a licensed water well driller) to the TDLR Water Well Drillers Program, Austin Texas. If a well is intended for use, it must comply with 16 TAC.

22. Any tree 9" in diameter or larger at 4.5' above natural grade is considered "regulated". Please refer to the LDC and technical manuals for tree survey, preservation and mitigation requirements. Also refer to the Design & Construction Guide for the tables and tree protection standard details as noted in #25.

23. All product submittals for Public Improvements Construction Projects shall be submitted to the COSM (after approval by the Design Engineer) in PDF format and approved by the COSM prior to construction.

24. Prior to COSM acceptance of the project, all graded and disturbed areas are to be at least 70% re-vegetated with no large bare areas (greater than 3' diameter) in accordance with COSM and project specifications.

25. On the COSM's Design & Construction Guide webpage, located under Engineering & Capital Improvements, the following documents can be found: These Development Construction Requirements and Notes, Detail Design Criteria, Specifications and Details, Standard Product List, Modification to Austin/TxDOT Standard Specifications, Tree Preservation and Mitigation Tables, Landscape Calculation Table, Parking Table.

26. TX 811(811) must be used to locate all existing utilities for the contractor. Once locates are provided, it is the contractor's responsibility to retain these locations. Repeat locates within 14 days will be charged to the contractor.

27. Appropriate erosion controls and tree protection measures shall be in place prior to any site disturbance.

28. Fire extinguisher is required on all construction sites. Minimum of one per site, per floor at each stall/air or each storage shed. 2A10BC minimum size (5lbs).

29. Standpipe system required for any construction over 30 feet in height. Required to maintained within one floor of top construction floor. Approved lighted stairway access required.

30. Construction site required to be kept clean, travel paths clear and stored combustible pile spread out.

31. Fire watches are required to be approved prior to implementing (does not apply for hot work). (Fire Prevention at 512-393-8480)

32. Hot work permit(s) required as per Chapter 38 of Fire Code.

33. If building is designed with an automatic sprinkler system, the system must be installed, inspected and operational before occupying building (includes furnace and staff).

34. All work in the right-of-way or COSM easement will be constructed and restored in accordance to current COSM details and specifications.

Public Rights-of-Way

1. Where there is a conflict between the drawings and the COSM specifications and details, the more stringent shall apply. In no case is a contractor or owner authorized to construct, build or develop in contrast with adopted COSM codes, standards or details.

2. Location of existing lines is approximate. The contractor shall verify the location and elevation of utilities prior to beginning construction. Conflicts with the proposed work should be brought to

the attention of the Engineer of Record and the project inspector immediately. It shall be the contractor's responsibility to repair any damages made as a result of construction at the contractor's expense.

3. The contractor shall not attempt to determine locations by scaling from plans. While every attempt has been made to prepare these plans to scale, the Engineer of record should be consulted if clarifications are needed.

4. Emergency Telephone Numbers (numbers may change - contractor should verify numbers)

- Tx 811 (formerly DigTess) 811
- Police - Fire - EMS 911
- TX DOT 512-353-1061
- Century Telephone 512-754-5223
- Southwestern Bell 1-800-464-7928
- Gas Company 1-800-427-7142
- Spectrum 855-578-5500
- Grande 800-218-5725
- University 512-245-2108 and/or 245-2508
- Pedernales Electric 888-554-4732
- Bluebonnet Electric 800-949-4414
- SM Electric Utilities 512-393-8313
- SM Water/WW Utilities 512-393-8010

5. The contractor is responsible for acquiring any temporary construction easements for the project. Documentation shall be provided to the Permit Center.

6. The contractor shall be responsible for relocating any COSM water and wastewater utility lines and service taps where required. The contractor shall be responsible for relocating any COSM traffic facilities where required at the contractor's expense.

7. Contractor shall keep driveways open and accessible during construction. Underground utilities crossing commercial driveways shall be installed such that a minimum 10' traffic lane is kept open at all times. Spoilage material shall not be mounded more than 18" high adjacent to a driveway or intersection.

8. No construction operation relative to installation of utilities, including stockpiling of excavated materials, shall be permitted within the limits of existing pavements carrying traffic on state highways or COSM roads and streets unless specifically authorized in writing by the respective Authority Having Jurisdiction.

9. The contractor shall develop and submit a traffic control plan, which will show both daytime and nighttime operations during various phases of construction. The plan must be submitted to mypermitnow.org for review at least 14 days before construction begins. The plan must be approved before construction begins. The contractor shall designate a person who will be accessible on a 24-hour basis and responsible for the maintenance of the traffic control devices. This 24-hour contact number must be posted visible to the street on the job site and provided to the Public Services-Transportation Division. The contractor is responsible for furnishing the traffic control devices described in the plan and all costs associated with installation, maintenance and removal.

10. Any damage caused to any existing COSM water/wastewater, or storm sewer infrastructure will be repaired by the contractor to the satisfaction of the COSM at the contractor's expense prior to the Certificate of Occupancy or Certificate of Acceptance being issued.

11. When work is performed on private property or easements, all lawn grass, shrubbery, flowers, site utilities (including irrigation systems), trees and fences in the way of the work shall be removed, protected and replaced to their original condition and position upon completion of the work. All property monuments disturbed during construction shall be restored by a Registered Professional Land Surveyor at the contractor's expense.

12. The contractor must provide a Proof of Destination and truck route documents for trucks used to deliver or remove material or spoils from the job site upon request by inspectors.

13. All valves, manholes, SMEU electrical facilities and other appurtenances must remain accessible to the COSM crew AT ALL TIMES during construction. These appurtenances shall also be raised to final grade, if within the project limits.

14. All assets constructed within the COSM's right-of-way must be submitted to the COSM with GPS coordinates at the end of each project. Coordinates will be submitted for all assets (including directional changes, valves, manholes, format, on the NAD 1983 State Plane Texas South Central FIPS 4204 Feet Coordinate System. All coordinates will be submitted in grid units. The required file type for coordinate data submission is ".txt" format.

15. The right-of-way will be kept clean at all times. Daily and sometimes more frequent sweeping may be required. A detention will be issued if the right-of-way is not kept clean. Do NOT wash, sweep or otherwise cause construction soil or debris to be deposited into any storm water drainage or conveyance system.

16. The Owner shall coordinate temporary relocation of mailboxes with the San Marcos Postmaster. Final location shall be in accordance with the local post office requirements.

17. All permanent pavement markings should be Type I and Type II per COSM specifications and details.

18. Any traffic changes, including signs, signals and/or pavement markings shall be the responsibility of the contractor.

19. All Material Testing shall follow the schedule below:

CITY OF SAN MARCOS TESTING SCHEDULE	
Description:	*Rate:
Soils: Standard Proctor - Trench Backfill Standard Proctor - Raw Subgrade Densities - Trench Backfill** Densities - Cement Stabilizer Backfill Densities - Raw Subgrade** Densities - Driveways	Per Material Source Per Material Source or Street Per 200 LF Pipe per lift Per 200 LF Pipe Per 300 LF Street per lift Per 5 Driveways
Base: Sieve Analysis Atterbergs Limits Modified Proctor Densities of Compacted Base** Wet Ball Mill Test Triaxial Test	Per 300 LF Street Per 300 LF Street Per Material Change Per Material Source Per Material Source
Hot-Mix Asphalt Concrete (HMAC): Extraction, Sieve Analysis Lab Density & Stability Theoretical Density (Rice Method) Temperature - During Lay-Down Thickness - In Place % Air Voids - In Place % Theoretical Density - In Place	Per 500 Tons or Day Per 500 Tons or Day Per 500 Tons or Day Continuous as Needed Per 300 LF Street Per 300 LF Street Per 300 LF Street

CITY OF SAN MARCOS TESTING SCHEDULE	
Description:	*Rate:
Concrete: (Unconfined Compression, 7, 14 & 28 Day) Curb and Gutter Sidewalk Driveway Curb Inlets Air, Slump & Compression - In Place Slump & Compression -In Place	Per 1000 LF C&G Per 4000 SF Per 2500 SF Per 10 Inlets Per exposed structure Per underground structure

* The above testing rates are only anticipated guidelines. The COSM reserves the right to require at owner's expense additional testing at the COSM's discretion.
** Testing must be conducted during backfill operations
*** Density will be per COSM details.

Erosion Control and Stormwater Management

1. It is unlawful for any general contractor, subcontractor or owner to allow or cause to be allowed, erosion of material from a construction site.

2. Appropriate erosion controls and tree protection measures shall be in place prior to any site disturbance. Site work permitted by a Site Plan Permit and/or a Demolition Permit cannot begin until erosion control and tree protection measures are in place.

3. All construction-related vehicle parking and activity (including employee personal vehicles and delivery vehicles) must be located within the Limits of Construction, with appropriate controls, or designated parking/access on APPROVED surfaces outside the Limits of Construction.

4. Certain erosion control measures identified by the COSM are to be employed to prevent erosion; however, these are only minimum standards. See construction details on Design & Construction Guide webpage, located under Engineering & Capital Improvements.

5. In the event of unusual site conditions, proximity to any water bodies, and/or weather related events, more stringent requirements may be necessary (on-site or off) to maintain erosion and sedimentation control.

6. The owner or their designee is responsible for all changes, upgrades and continued maintenance of all erosion control and storm water management features at all times.

7. Erosion control measures and storm water management practices will be inspected by the COSM prior to and during the construction process:

Engineering Inspections is responsible for the inspection of Public Improvements Construction Projects (PICP) and infrastructure in the ROW to the property line or easement, including sidewalks and drive ways as noted under the driveway and sidewalk section.

Planning/Development Services is responsible for the inspection of all residential and commercial construction.

8. All designs to prevent the erosion of soil and the transport of sediment and debris from the construction site, or surrounding areas disturbed by construction shall, be maintained by the contractor during construction.

9. All streets adjacent to the project site must be kept clean of mud, rocks, trash, and building debris at all times. Daily or more frequent sweeping may be necessary, including the street center/turn lane and gutters. During muddy conditions, clean vehicle tires before leaving the site and/or remove mud, dust and dirt from public streets regularly throughout the day; sweep roads as soon as possible. Or prevent vehicles from leaving the site during muddy conditions. Migration of material or sediment from the site will require daily cleanup of paved streets and of drainage areas impacted by onsite or offsite construction. The contractor is required to take any necessary measures to prevent the migration of dust into the air due to construction activities.

10. All storm drain inlets within 200 feet of any permitted construction area must be protected per City detail (refer to #4 above).

11. Dewatering operations must use SWPPP-specified methods only. If such methods are only general or not applicable, pump from the top of the pool of water (rather than the bottom) and discharge to a vegetated, upland area (away from waterbodies or drainage) or use another type of filtration prior to discharge EVERY TIME. Refer to the EPA 2017 Construction General Permit, Section 2.4, as applicable.

12. The contractor or owner must have a designated person responsible for continuous (24 hours a day/7 days a week) monitoring of erosion control measures to ensure compliance with all federal, state, and local laws and regulations.

13. Do NOT wash, sweep or otherwise cause construction soil or debris to be deposited into any storm water drainage or conveyance system.

14. COSM MS4- Projects with a disturbed area of 1 to <5 acres must submit a signed, certified Small Construction Site Notice (CSN) to the COSM through MyPermitNow prior to construction activity starting. Projects with disturbed area of 5+ acres must submit a signed, certified Notice of Intent (NOI) to TCEQ; they must also submit the signed certified NOI and Large CSN received from TCEQ to the COSM through MyPermitNow prior to construction activity starting. COSM is the MS4 operator; these submissions to the COSM meet the required initial notification to the MS4 operator. CSN must be displayed at a construction site in public view prior to the commencement of construction activities.

15. Contractor shall provide qualified personnel to perform SWPPP inspections on projects equal to 1 acre or greater. Qualified personnel shall have CISECC, CESSWI, or equivalent certification approved by the MS4.

16. Qualified personnel shall inspect the construction site at least once every seven calendar days. A project-specific SWPPP must be prepared in accordance with the requirements of the Construction General Permit and shall be designed and signed by a licensed professional engineer (Texas) with competence in this area as required by Texas Engineering Practices Act Section 137 and/or a Certified Professional in Erosion and Sedimentation Control (CPESC). The SWPPP must be onsite at all times and shall be made available to the City of San Marcos upon request.

Water Utility Notes

1. All taps to the COSM water system for private property shall be metered.

2. When a tap is proposed on an existing Asbestos Cement (AC) pipe the contractor will replace the AC pipe segment with an approved PVC pipe per City Standard Product List (SPL). If the proposed tap is less

than 24 inches from an AC pipe joint the replacement of the AC pipe will require additional segments to ensure adequate tap and joint separation. New pipe will be connected to the existing AC pipe with wide range coupling adaptor per City SPL.

3. A list of accepted metering devices can be found on the engineering webpage under SPL WW-144. All metering devices shall be located on public right-of-way in easement.

4. All water utility lines leading to private property (except some authorized small domestic water lines) shall be provided with a testable back flow prevention device approved by the AWWA and the COSM. See detail.

5. The back-flow prevention device must be located as close as possible to the public right-of- way on private property.

6. A backflow prevention device with a low-flow indicator is required on all dedicated fire lines as per COSM details.

7. Any bypass to a backflow prevention device must have a testable back flow prevention device at least equivalent to the primary line approved by the AWWA and the COSM.

8. It is the responsibility of the owner and contractor to verify the type and size of the backflow prevention device with the COSM's Water Services (512)393-8010, for the property served, prior to construction.

9. Accepted Metering Devices - See Standard Product List WW-144

10. Accepted Utility Line Types (verify use with Inspector)

Pipe Material	Use	Pipe Sizes	Classification
Cooper Tubing	Service Lines	1"	Type K
PVC	Service Lines	2" - 3"	Schedule 80
PVC	Distribution, Service Lines	4" - 12"	C900 DR 14
Ductile Iron	Fire Hydrant Lead Distribution	6"	C151 CI 350
Ductile Iron	Distribution Line	8" - 12"	C151 CI 350
Ductile Iron	Transmission Line	16" - 60"	C151 CI 250
PVC	Transmission Line	16" - 24"	C905 DR 18

11. Private property fire hydrants shall be RED - Public fire hydrants shall be factory coated aluminum based silver paint. No pre-owned hydrants permitted.

12. All utility lines shall be tested after all appurtenances (hydrants, sampling ports, valves, etc.) are installed complete in place and located at final grade. All utility lines shall be tested from gate valve to gate valve at 200 psi for 10 minutes and @ 150 psi for 2 hours. A fire line dedicated for a fire protection system shall be tested @ 200 psi for 2 hrs.

13. A licensed underground installer certified by the Texas Commission on Fire Protection must perform underground fire line installation (Fire Sprinkler System). Most plumbers and utility contractors do not meet this criteria! Please verify before construction.

14. COSM to be given 48-hour notice (required) prior to all testing of utility lines. COSM inspection required for all utility lines.

Public

All utility taps, line installations, extensions, or adaptations in the public right-of-way, up to and including the metering device, for all Public Improvement Construction Projects will be inspected by the Engineering Inspector.

Private

- All domestic water line installations, extensions, or adaptations on public or private property for all Site Plan Permits, including the valve, and meter will be inspected by a Building Inspector.

Private utility lines utilized by any fire protection system (fire line), or utility combo line will be inspected by the Fire Prevention Office.

- All backflow prevention devices will be reviewed by the Backflow Prevention Manager (Public Services-Water Division) prior to installation.

15. All backflow prevention devices must be tested by a State licensed/certified back flow prevention assembly tester. Test reports shall be on a form as prescribed by the COSM-Public Services Water Division. All testers submitting inspection results must be registered prior to testing devices in the Public Services Water Division. A copy of the test results are to be submitted to the COSM-Public Services Water Division and the COSM Inspector prior to activation of water service. A copy of the backflow test is to be attached to the back-flow prevention device that was inspected and/or tested.

16. All water lines leading to private property must provide a bacteriological test to the inspector noted in the inspections section above. All bacteriological samplings must be certified within 20 days of project acceptance. On all dead-end lines and lines not yet tied into a water system, an automatic flush valve shall be installed with an approved water meter. After the pressure tests and bacteriological samplings have passed, the Contractor must give notice to the Engineering Inspector for activation of the device.

17. Fire hydrants must be placed or moved to finished elevation after installation per detail 511S-17-SM. Finished elevation is 18" to 24" from the center of the lowest connection to the adjacent grade.

18. Fire hydrant is required within 100 feet of the Fire Department Connection (FDC) is joining is equipped with a fire sprinkler system.

19. Fire hydrants are required to have a clear area of 5 feet. No plants, trees or obstacles allowed except as impact protection outline by Fire Code

20. Fire hydrants are required to be marked with a blue reflective marker on the roadway 6" to 10" off center of the roadway towards the hydrant. On corner lot installation, both roadways are required to be marked.

21. The underground contractor must submit a report (on company letterhead) to fireplan@sanmarcostx.gov indicating that the fire line is complete and has been flushed of all debris.

22. All fire hydrants that have not been inspected or flushed are considered "out of service" and are required to have a black plastic wrap covering the hydrant.

23. COSM will not perform the tie-in of a public service line to a private line.

24. It is the responsibility of the owner or contractor to tie to the COSM's line from the right-of-way or public easement to the private property line. It is the licensed plumber/utility contractor responsibility to maintain proper slope and connection of system to the public connection.

25. Fire hydrants capable of producing the required GPM (based on construction type) must be located within 500 foot of the most remote portion of the building using accessible surfaced roadway for measurement.

26. Fire hydrants must be operational prior to beginning combustible construction.

27. All valves in a COSM right-of-way will be operated by COSM personnel only. The contractor may not operate any COSM owned valve. The general contractor will be fined if a water valve is operated without express written consent of the Water Utility, regardless of who operated the valve.

28. Only temporary water meters approved by the COSM are authorized for use on any fire hydrant (public or private).

29. Temporary meters may be relocated from one hydrant to another only by Water- Waste/Water personnel.

30. A fire will be imposed on operators using fire hydrants without meters, with unapproved meters, or failing to use approved backflow prevention or air gap protection.

31. Truck blocks are not permitted. All fittings shall be mechanically restrained. Bell joints shall be mechanically restrained in accordance with the Engineer of Record's specifications based on site conditions. A joint restraint table, sealed by the Engineer of Record must be submitted with each set of plans. If a joint restraint table is not available, all joints must be mechanically restrained.

32. The service address must be posted and visible (as per COSM specifications) from the street prior to the installation of the meter as per Chapter 38 of local ordinances.

33. Disinfection sample taps shall be installed at proper locations (not more than 1000-foot intervals) along public water lines.

Wastewater

1. Required Equipment - The following are the acceptable materials for the type of lines or connections shown:

Public Sewer Lines - SDR 26 in the COSM right of way (as a minimum). See SPL WW227 &WW-227A

Private Sewer Lines - Schedule 40 or SDR 26 Approved connections - See SPL WW-354

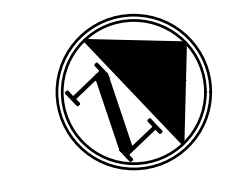
2. Inspection

Engineering Inspections is responsible for inspection of all utility taps, line installations, extensions, and adaptations on all Public Improvement Construction Projects. See 510.3(26) Quality Testing for Installed Pipe-of-the Modifications of Austin Specifications for more details.

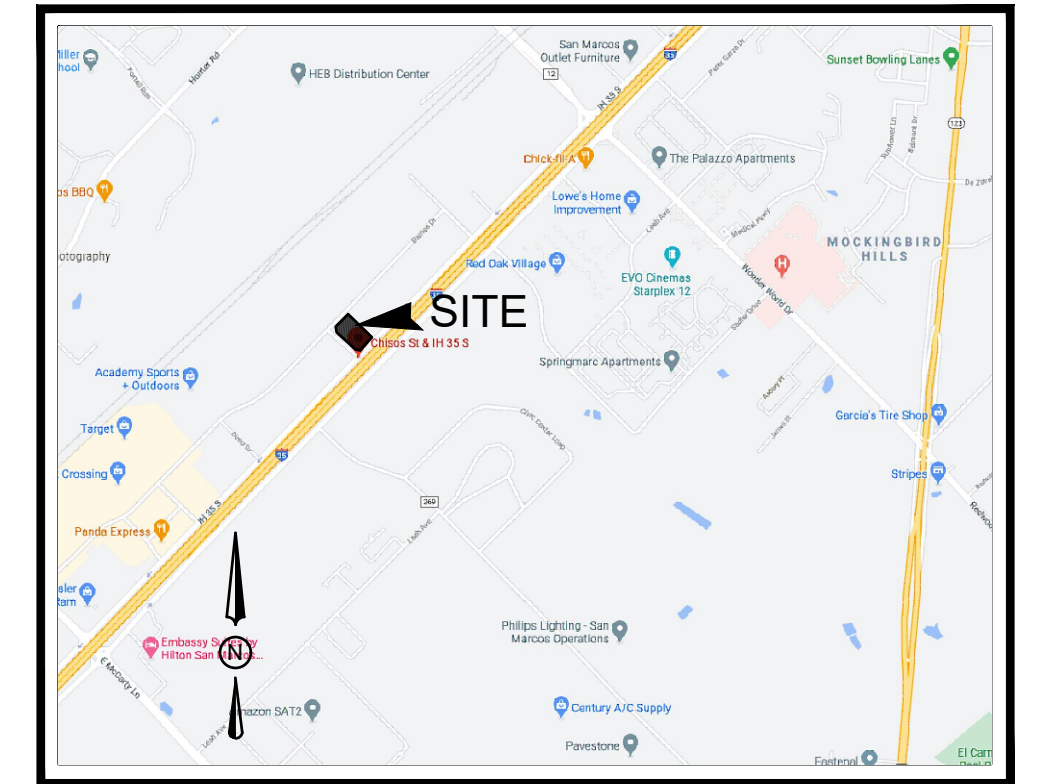
- 4-psi minimum pressure test on lines
- Lines must be flushed immediately prior to the TV test
- TV test on all public lines (copy of video to Engineering Inspections)
- Mandrel test required 30 days after installation

Building Inspections is responsible for inspection of all utility taps, service laterals, and private lines on all Site Preparation Projects and all residential and commercial construction.

- Low-pressure air test with 5 PSI on all lines



Scale: 1" = 30' Feet



VICINITY MAP
N.T.S.

LEGEND

○ IRON PIPE FOUND	□ GAS METER
○ IRON ROD FOUND	□ TELEPHONE PEDESTAL
○ IRON ROD SET	□ CABLE PEDESTAL
x 12" IN CONCRETE	□ SANITARY SEWER MANHOLE
▲ PK FOUND	□ STORM SEWER MANHOLE
● CALCULATED POINT	○ ELECTRIC GROUND
■ CONCRETE MONUMENT	○ CONTROL POINT
○ FIRE HYDRANT	○ UNDERGROUND UTILITY MARKER SIGN
○ WATER METER	○ UNDERGROUND UTILITY TEST STATION
○ CLEANOUT	○ ELECTRIC TRANSFORMER
○ GAS VALVE	□ TRAFFIC SIGNAL BOX
○ POWER POLE	○ P.U.E. PUBLIC UTILITY EASEMENT
○ ELECTRIC METER	○ D.E. DRAINAGE EASEMENT
○ DOWN GUT	○ B.L. BUILDING LINE
○ LIGHT POLE	○ RECORD CALL
○ WOOD FENCE	○ EXISTING GAS
○ CHAIN LINK FENCE	○ EXISTING SANITARY SEWER
○ WIRE FENCE	○ EXISTING FIBER OPTIC
○ METAL FENCE	○ EXISTING WATER
	○ OVERHEAD ELECTRIC LINE

DEMOLITION LEGEND

---	SAWCUT LINE
▨	AREA TO BE REMOVED

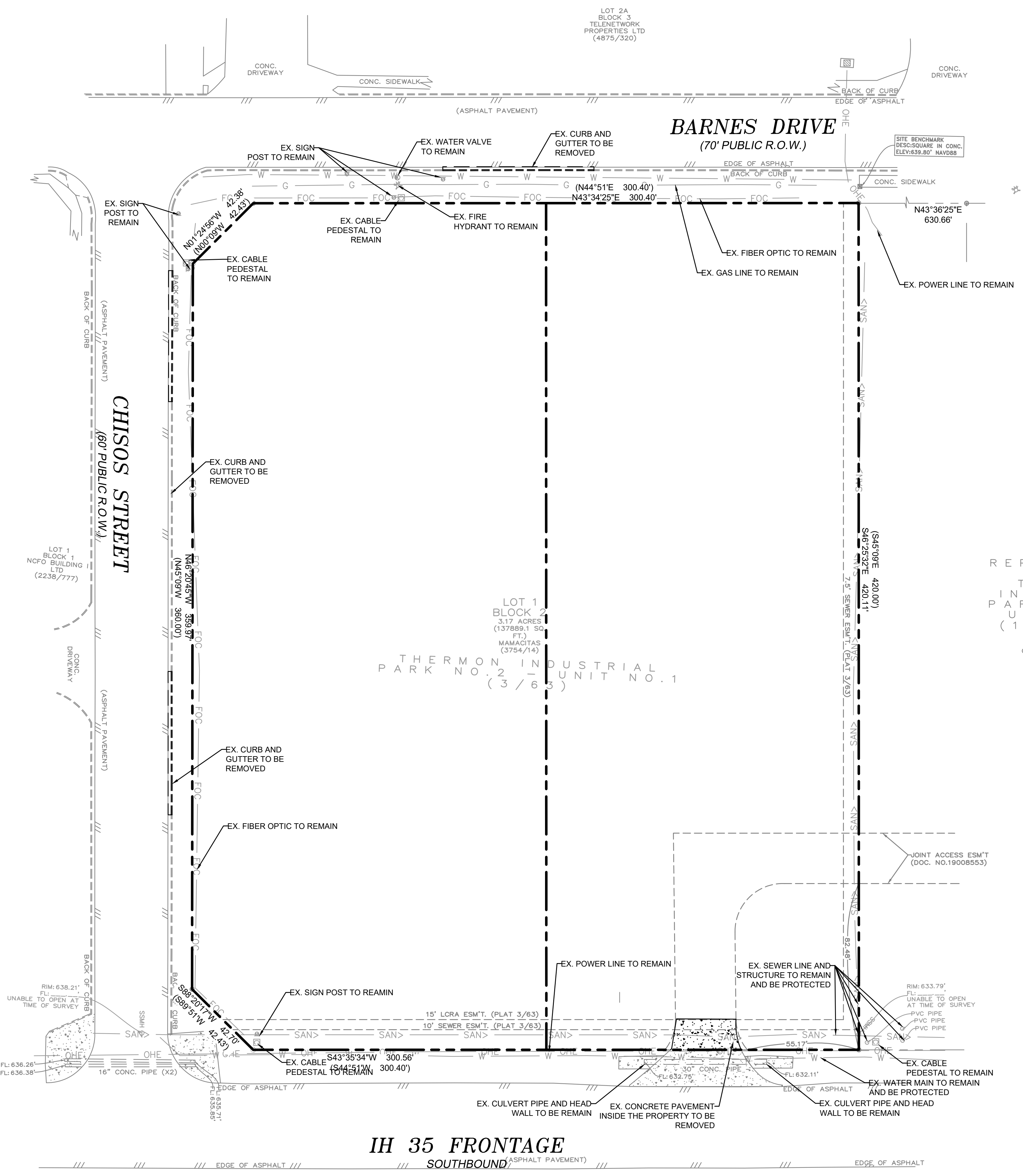
TREE NOTES
THE ARE NO EXISTING REGULATED TREES IN OR OVERHANGING THE LODI.

- CITY DEMOLITION NOTES**
- BEFORE ANY DEMOLITION STARTS, ALL EROSION/SEDIMENTATION CONTROLS MUST BE INSTALLED AND THEIR INSTALLATION APPROVED BY A CITY INSPECTOR AT AN ONSITE PRE-CON MEETING. (TXR150000 PART III.G.1. AND CITY CODE SECTION 86.529.(A)(1)).
 - IF THERE IS A DELAY OF MORE THAN 14 DAYS ANY TIME BETWEEN DEMOLITION COMPLETION AND CONSTRUCTION START, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER TXR150000 PART III.F.2.(B), III(CITY CODE SECTION 86.529(A)(1)(G). USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.

- DEMOLITION GENERAL NOTES**
- ANY DEMOLITION IS TO BE PERFORMED IN STRICT CONFORMANCE WITH ALL APPLICABLE CITY, COUNTY AND STATE, AND/OR GOVERNING BODY'S STANDARDS.
 - EROSION AND SEDIMENT CONTROL MEASUREMENTS SHALL BE MAINTAINED AT ALL TIMES DURING DEMOLITION.
 - THE PURPOSE OF THIS DRAWING IS TO CONVEY THE OVERALL SCOPE OF WORK AND IT IS NOT INTENDED TO COVER ALL DETAILS OR SPECIFICATIONS REQUIRED TO COMPLY WITH GENERALLY ACCEPTED DEMOLITION PRACTICES. CONTRACTOR SHALL THOROUGHLY GET FAMILIARIZED WITH THE SITE, SCOPE OF WORK, AND ALL EXISTING CONDITIONS AT THE JOB SITE PRIOR TO BIDDING AND COMMENCING THE WORK. THE DEMOLITION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, OR PROCEDURES USED TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND IS LIABLE FOR THE SAFETY OF THE PUBLIC OR CONTRACTOR'S EMPLOYEES DURING THE COURSE OF THE PROJECT.
 - THE DEMOLITION PLAN IS INTENDED TO SHOW REMOVAL OF KNOWN SITE FEATURES AND UTILITIES AS SHOWN ON THE SURVEY. THERE MAY BE OTHER SITE FEATURES, UTILITIES, STRUCTURES, AND MISCELLANEOUS ITEMS BOTH BURIED AND ABOVE GROUND THAT ARE WITHIN THE LIMITS OF WORK THAT MAY NEED TO BE REMOVED FOR THE PROPOSED PROJECT THAT ARE NOT SHOWN HEREON. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE CITY, ENGINEER AND/OR OWNER PRIOR TO REMOVING ITEMS NOT SHOWN ON THE PLANS.
 - THE CONTRACTOR SHALL CONTACT RESPECTIVE UTILITY COMPANIES PRIOR TO DEMOLITION TO COORDINATE DISCONNECTION AND REMOVAL OF EXISTING UTILITIES WITHIN THE AREA OF WORK.
 - THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES THAT ARE INTENDED TO CONTINUE TO PROVIDE SERVICE WHETHER THESE UTILITIES ARE SHOWN ON THE PLAN OR NOT.
 - UPON DISCOVERY OF ANY UNDERGROUND TANKS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE. NO REMOVAL OF TANKS SHALL OCCUR UNTIL AUTHORIZED BY OWNER.
 - BUILDING AND APPURTENANCES DESIGNATED FOR DEMOLITION SHALL NOT BE DISTURBED BY THE CONTRACTOR UNTIL HE HAS BEEN FURNISHED WITH NOTICE TO PROCEED BY THE OWNER, AS SOON AS SUCH NOTICE HAS BEEN GIVEN. THE CONTRACTOR SHALL PERFORM THE DEMOLITION, UNDER THE DIRECTION OF THE OWNER'S REPRESENTATIVE.
 - DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL UNSUITABLE MATERIAL AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL CITY, STATE, AND FEDERAL LAWS AND ORDINANCES.
 - AS SOON AS DEMOLITION WORK HAS BEEN COMPLETED, THE FINAL GRADE OF BACKFILL IN DEMOLITION AREAS SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT. CONTRACTOR TO PREVENT WATER FROM DRAINING ONTO ADJACENT PROPERTIES.
 - EXISTING TREES TO REMAIN SHOULD BE PROTECTED FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION.

REPLAT OF L
OT 2
THERMON
INDUSTRIAL
UNIT NO. 2
(18010054)

LOT 2-A
BLOCK 2
CTEC SM PROPERTY LLC
(DOC.NO.18010956)



IH 35 FRONTAGE
SOUTHBOUND

IH 35
(300' PUBLIC R.O.W.)



NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



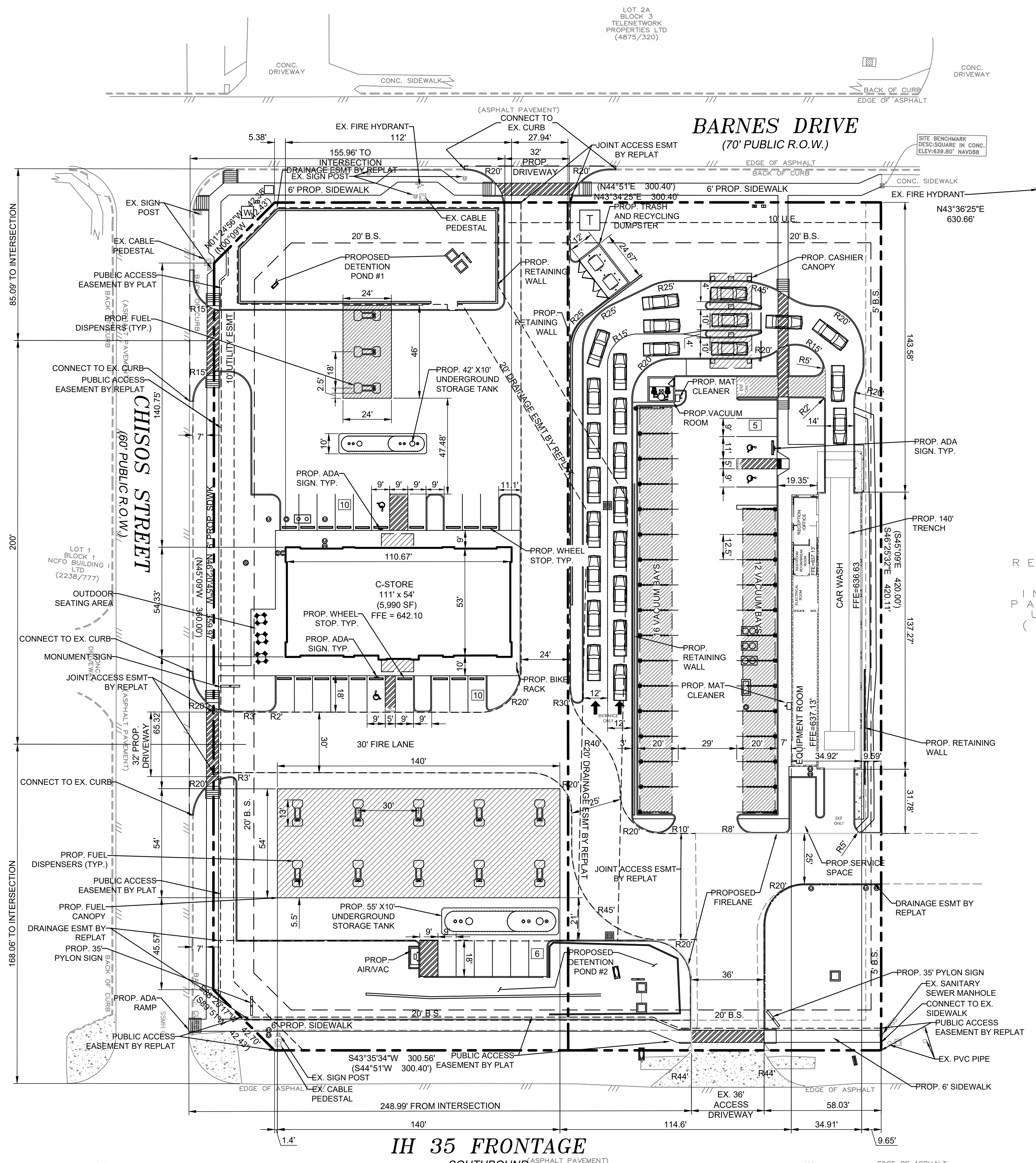
DEMOLITION PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

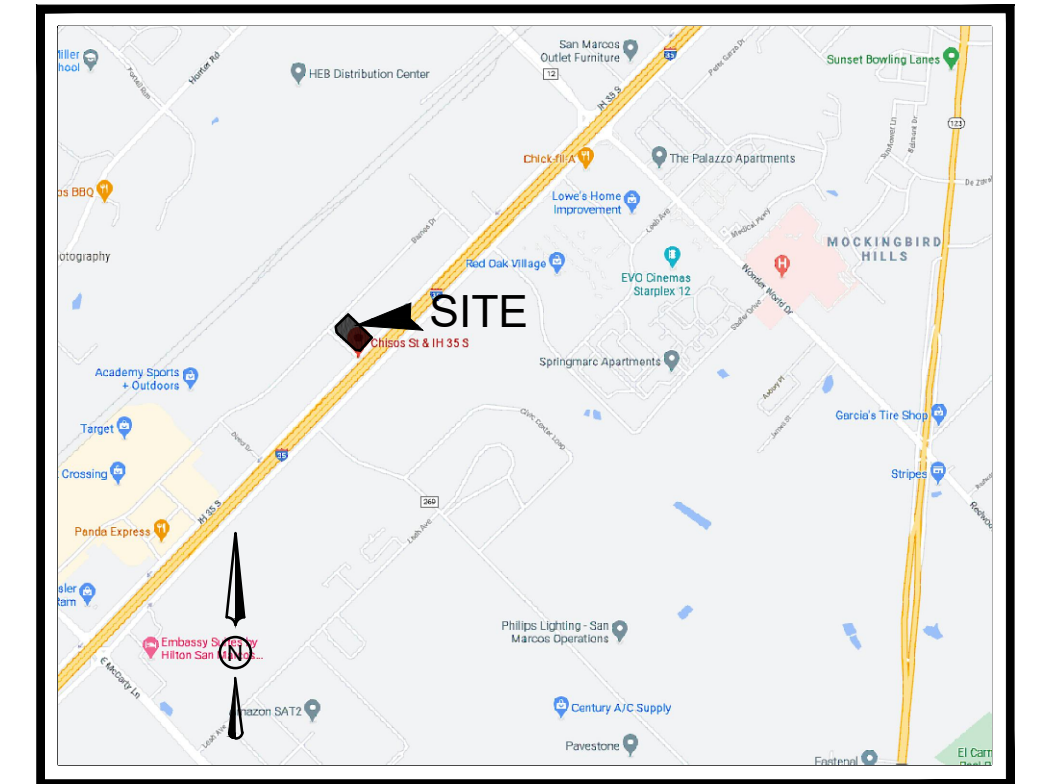
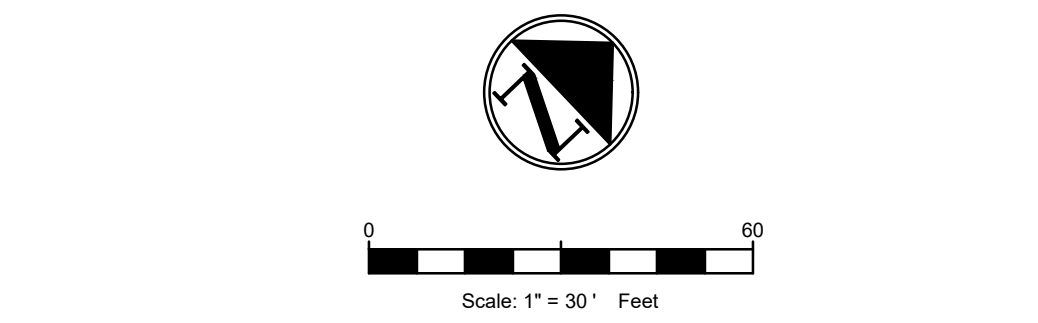
P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-2.0

TX. P.E. FIRM #11525



LEGEND

⊙	IRON PIPE FOUND	⊙	GAS METER
⊙	IRON ROD FOUND	⊙	TELEPHONE PEDESTAL
⊙	IRON ROD SET	⊙	CABLE PEDESTAL
⊙	"X" IN CONCRETE	⊙	SANITARY SEWER MANHOLE
⊙	PK FOUND	⊙	STORM SEWER MANHOLE
⊙	CALCULATED POINT	⊙	ELECTRIC GROUND
⊙	CONCRETE MONUMENT	⊙	CONTROL POINT
⊙	FIRE HYDRANT	⊙	UNDERGROUND UTILITY MARKER SIGN
⊙	WATER METER	⊙	UNDERGROUND UTILITY TEST STATION
⊙	WATER VALVE	⊙	ELECTRIC TRANSFORMER
⊙	C/O	⊙	TRAFFIC SIGNAL BOX
⊙	CLEANOUT	⊙	P.U.E. PUBLIC UTILITY EASEMENT
⊙	GAS VALVE	⊙	D.E. DRAINAGE EASEMENT
⊙	POWER POLE	⊙	B.L. BUILDING LINE
⊙	DOWN GUY	⊙	EXISTING GAS
⊙	ELECTRIC METER	⊙	EXISTING SANITARY SEWER
⊙	LIGHT POLE	⊙	EXISTING WATER
⊙	WOOD FENCE	⊙	OVERHEAD ELECTRIC LINE
⊙	CHAIN LINK FENCE		
⊙	WIRE FENCE		
⊙	METAL FENCE		



SITE LEGEND

CONCRETE CURB	---
SAW-CUT LINE	---
FENCE	X
FIRE LANE	---
STRIPING	---
LANDSCAPED AREA	---
PARKING SPACES	X
MONUMENT/PYLON SIGN	---
WHEEL STOPS	---
HANDICAP LOGO	---
HANDICAP SIGN	---
RAMP	---
BOLLARD	---
TRAFFIC ARROW	---
FIRE HYDRANT	---
DUMPSTER	---
VEHICLE	---

VICINITY MAP
N.T.S.

- SITE GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE CITY OR LOCAL JURISDICTION STANDARDS.
 - THE LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS IS TAKEN FROM AS-BUILTS, UTILITY PLANS OR SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE OWNERS OF SUCH UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA TO CONFIRM THEIR EXACT LOCATION AND TO DETERMINE WHETHER ANY ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL UNDERGROUND UTILITIES. IF EXISTING UNDERGROUND UTILITIES ARE DAMAGED, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPAIRING THE UTILITY.
 - WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR THE UTILITIES OR SERVICE LINES WITH THE SAME TYPE OF ORIGINAL MATERIAL AND CONSTRUCTION, OR BETTER, UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS. AT HIS OWN COST AND EXPENSE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS WITH UTILITIES.
 - ALL EXCAVATIONS, TRENCHING AND SHORING OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE U. S. DEPARTMENT OF LABOR, OSHA, CONSTRUCTION SAFETY AND HEALTH REGULATIONS AND ANY AMENDMENTS THERETO.
 - THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES, FENCES, DRAINAGE DITCHES, DRIVEWAYS, PRIVATE YARDS AND ROADWAYS.
 - ANY CHANGES NEEDED AFTER CONSTRUCTION PLANS HAVE BEEN RELEASED, SHALL BE APPROVED BY THE CITY ENGINEER. THESE CHANGES MUST BE RECEIVED IN WRITING.
 - THE CONTRACTOR SHALL PROVIDE "RED LINED" MARKED PRINTS TO THE ENGINEER PRIOR TO FINAL INSPECTION INDICATING ALL CONSTRUCTION WHICH DEVIATED FROM THE PLANS OR WAS CONSTRUCTED IN ADDITION TO THAT INDICATED ON THE PLANS.

SITE SUMMARY TABLE

	Gas Station w/ Convenience Store	Car Wash
STIE ACREAGE	1.672 AC (72,829.12 S.F.)	1.496 AC (65,147.33 S.F.)
ZONING	HC - HEAVY COMMERCIAL (SAN MARCOS WATER PROTECTION ZONE)	
PROPOSED USE	GAS STATION	CAR WASH
BUILDING AREA	5,990 S.F.	5,600 S.F.
NUMBER OF STORIES	1	1
BUILDING HEIGHT	28'	29'-8"
BUILDING COVERAGE	8.22%	8.60%
FLOOR AREA RATIO	0.082	0.086
FIRE CODE	IFC 2015	
PARKING REQUIREMENT	1 SPACE PER 250 GFA	2 SPACES PER 1,000 S.F.; PLUS QUEUE SPACES FOR MINIMUM OF 5 CARS
REGULAR PARKING REQUIRED	23	2
HANDICAP PARKING REQUIRED	1	1
HANDICAP PARKING PROVIDED	2	2
TOTAL PARKING PROVIDED	24	5
IMPERVIOUS AREA	56,697.44 S.F. (77.85%)	45,986.51 S.F. (70.59%)
PERVIOUS/LANDSCAPE AREA	16,134.88 S.F. (22.15%)	19,160.82 S.F. (29.41%)

Existing Slope Map Table Out of EARZ and SMRC

Zone	Slope Range	Area (SF)	Area (Acres)	Impervious cover percentage allowed	Impervious cover allowed (SF)	Impervious cover Existing Condition (SF)	Impervious Cover Proposed Condition (SF)
Site Area	***All slopes	138,085.20	3.17	75%	103564	0	102,831.70
	15%-25%	0	0.00	35%	0	0	0
	25% and greater	0	0.00	20%	0	0	0
Zone	*0%-15%	0	0.00	30%	0	0	0
	15%-25%	0	0.00	20%	0	0	0
	25% and greater	0	0.00	10%	0	0	0
NOT APPLICABLE	All slopes	0	0.00	0%	0	0	0



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9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



SITE PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

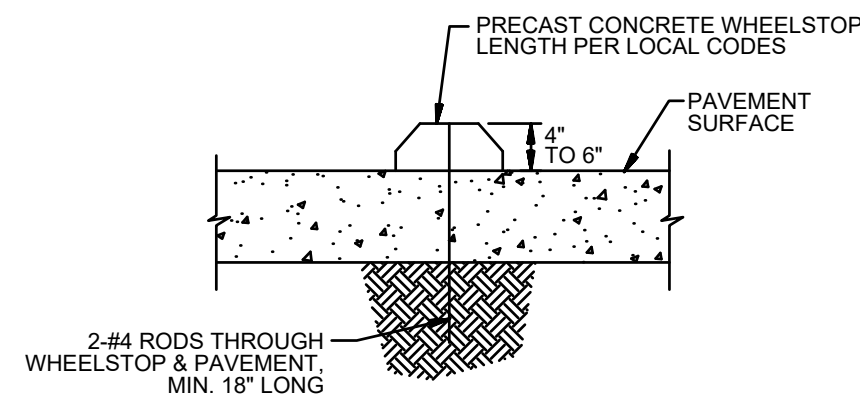
TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
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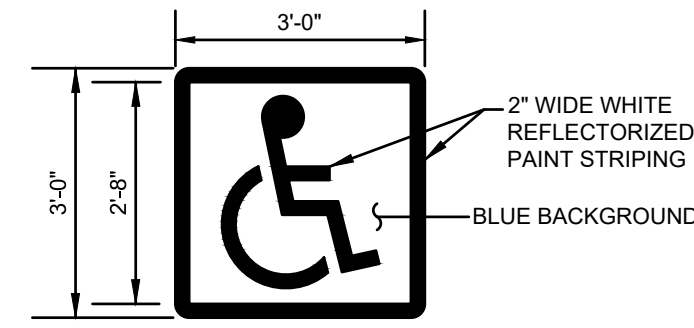
P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-3.0

TX. P.E. FIRM #11525

IH 35
(300' PUBLIC R.O.W.)

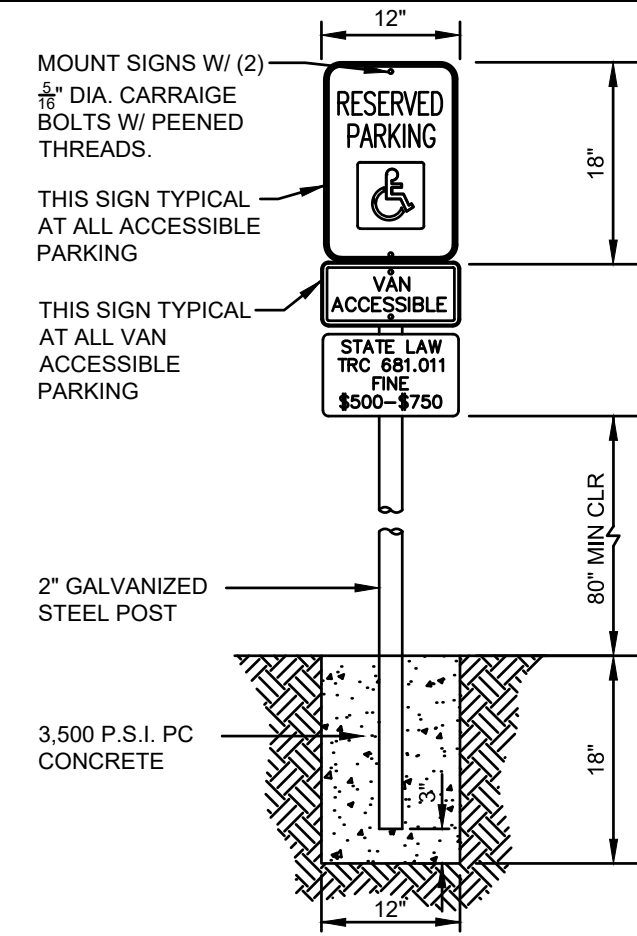


PRECAST CONCRETE WHEEL STOP DETAIL
N.T.S.

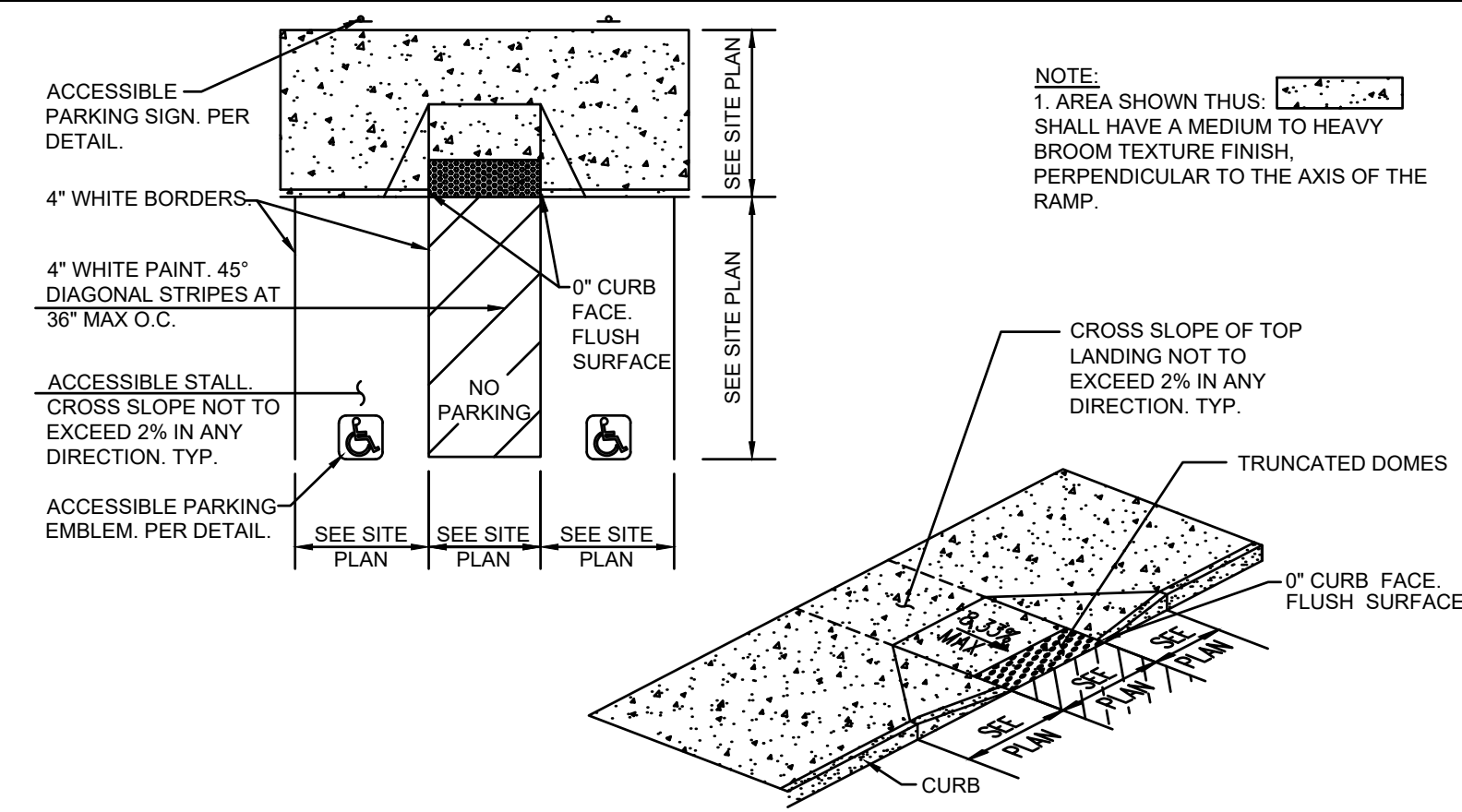


- NOTES:
1. STENCIL ONE SYMBOL ONTO PARKING SURFACE IN EACH ACCESSIBLE STALL.
 2. LOCATE PER ACCESSIBLE PARKING STALL DETAIL(S).
 3. ALL LINES 2" WIDE PAINTED ON WHITE ON BLUE BACKGROUND.

ACCESSIBLE PARKING EMBLEM DETAIL
N.T.S.



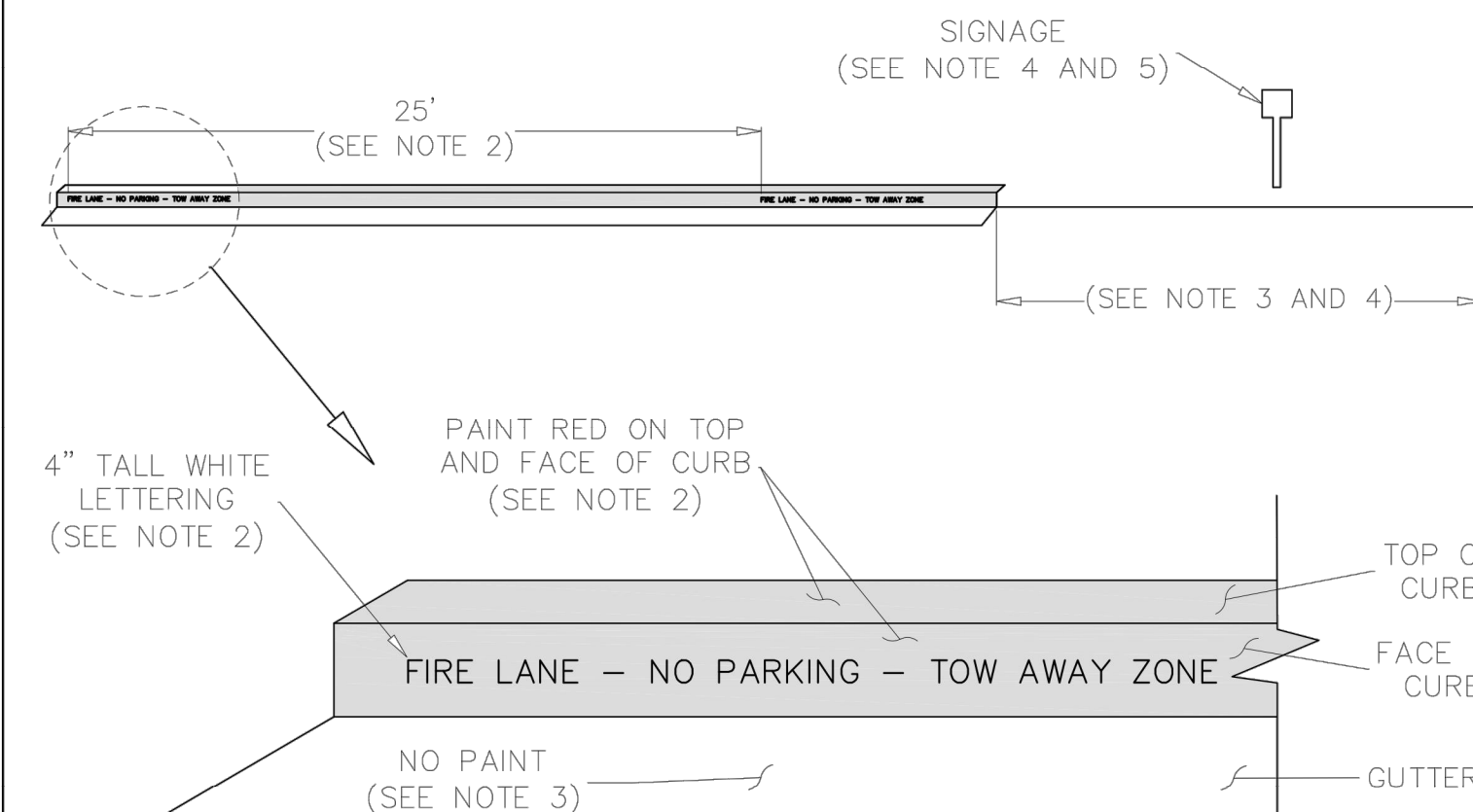
ACCESSIBLE PARKING SIGN DETAIL
N.T.S.



ACCESSIBLE PARKING STALL DETAIL
N.T.S.

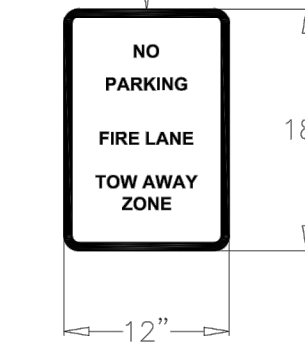
CURB AND GUTTER

LAYDOWN/RIBBON CURB OR NO CURB AND GUTTER



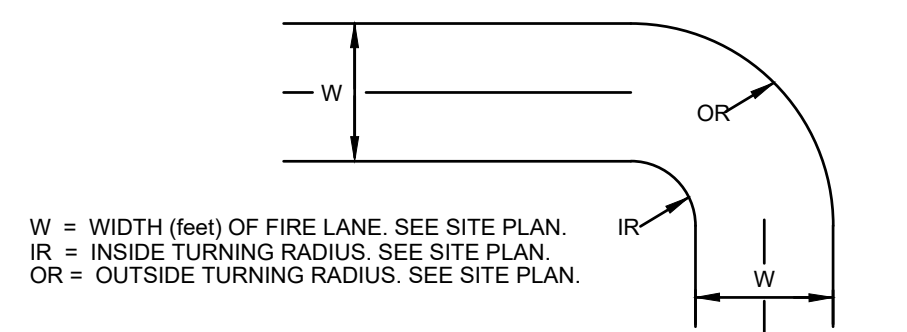
- NOTE:
1. ALL CURBS TOUCHING THE FIRE LANE AS SHOWN ON THE STRIPING PLAN SHALL BE STRIPED AS SHOWN ON THIS DETAIL.
 2. TOP AND FACE OF CURB PAINTED RED. WITH 3" - 4" HIGH WHITE LETTERS ON FACE OF CURB "FIRE LANE - NO PARKING - TOW AWAY ZONE" EVERY 25'.
 3. NO PAINT ON GUTTERS, PAVEMENT OR LAYDOWN CURBS.
 4. SIGNAGE MAY BE REQUIRED IN AREAS WHERE THE CURB FOR A FIRE LANE DOES NOT EXIST.
 5. WHERE REQUIRED, SIGNS SHALL COMPLY WITH SECTION D103.6 OF THE INTERNATIONAL FIRE CODE.

WHITE REFLECTIVE BACK ROUND RED LETTERING AND BORDER

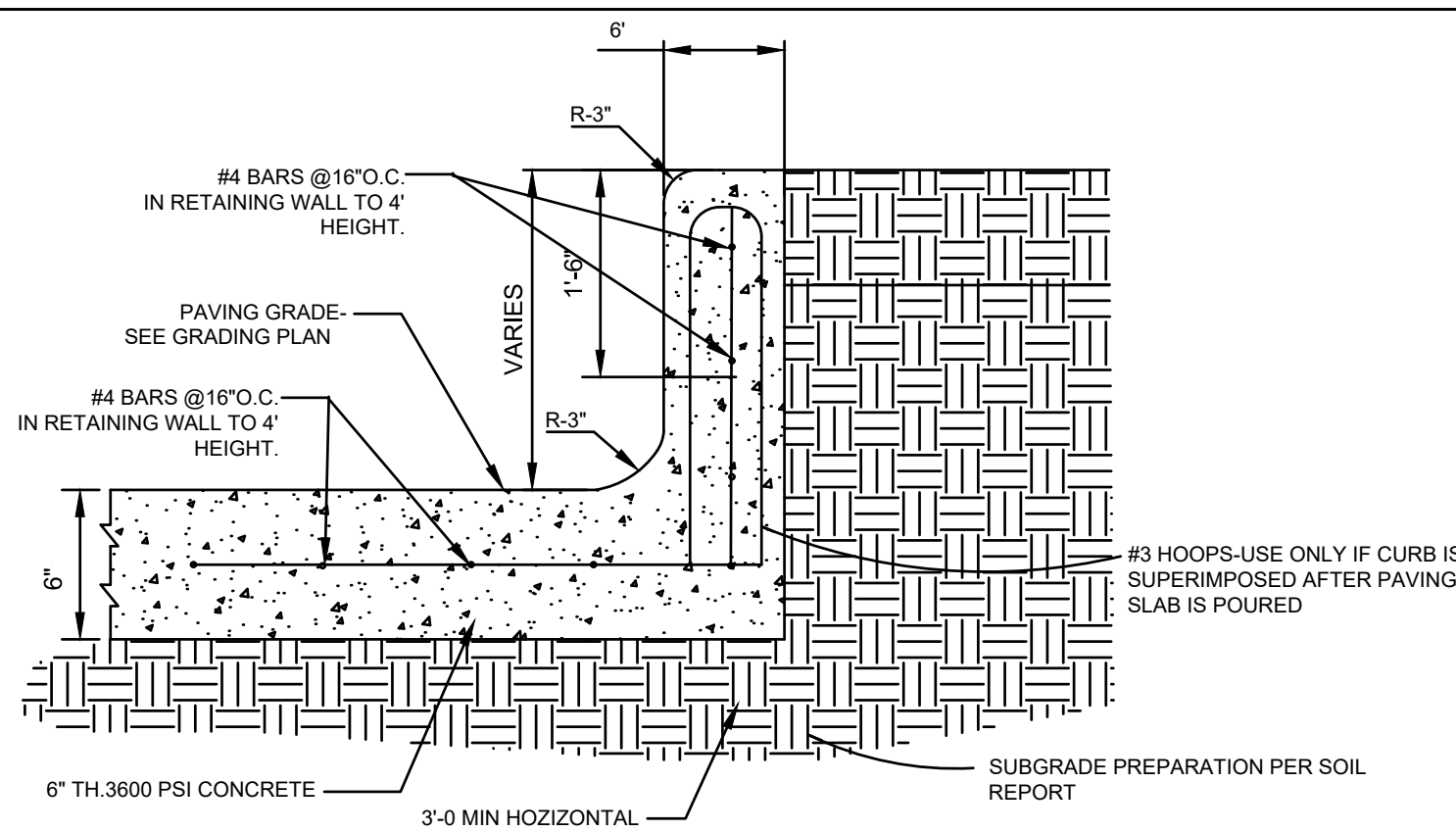


SIGNAGE
SEE NOTE 5

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	FIRE LANE STRIPING	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	6-30-2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	900-FLS-SM N.T.S. STANDARD DETAIL

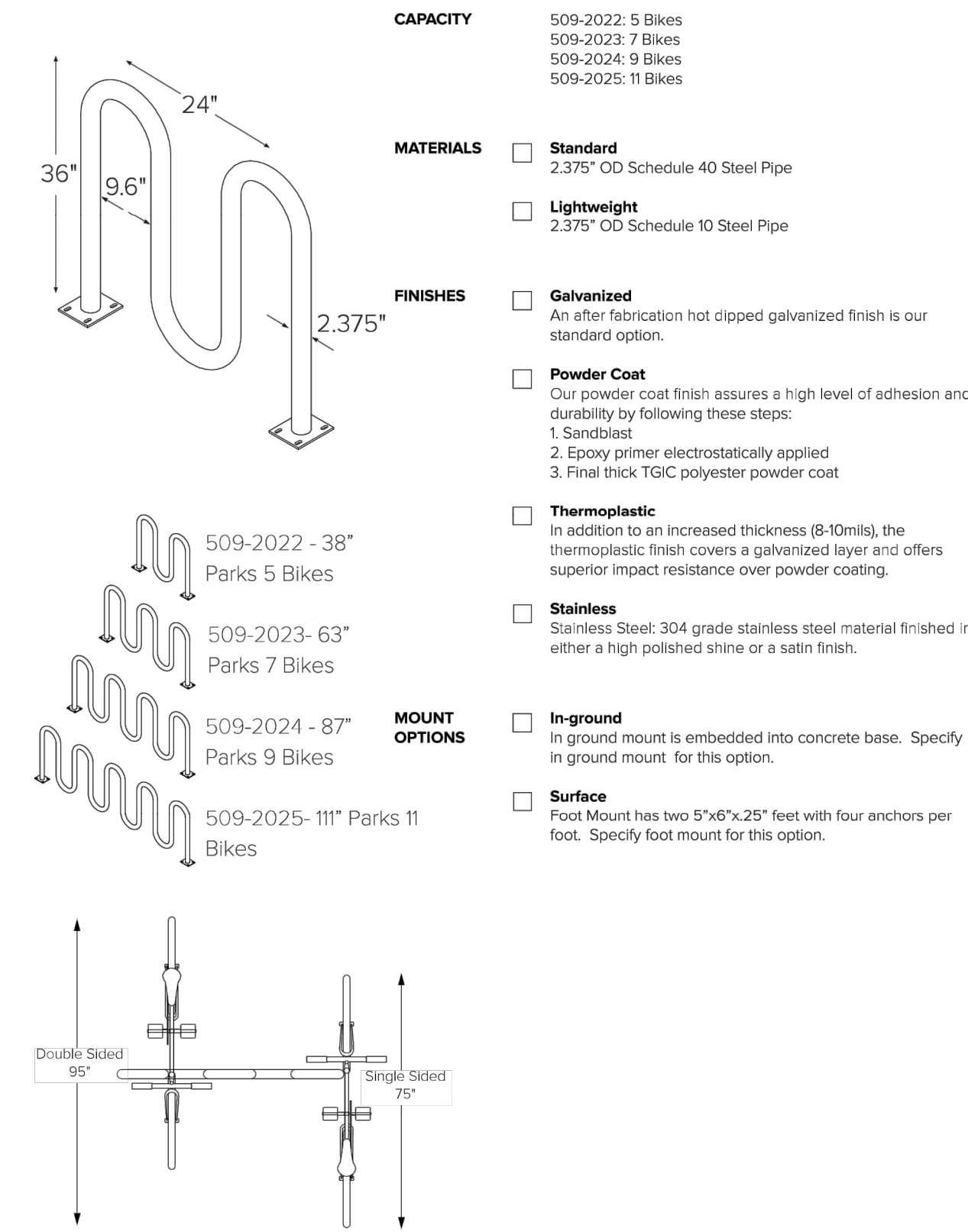


FIRE LANE DETAIL
N.T.S.



VARIABLE HEIGHT CURB W/RETAINING WALL DETAIL
N.T.S.

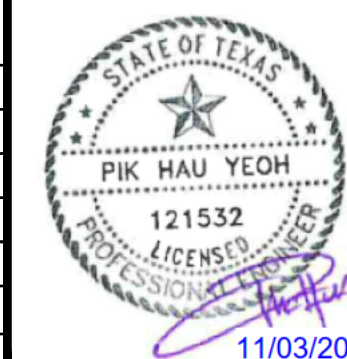
WAVE RACK
Submittal Sheet



CAPACITY	509-2022: 5 Bikes 509-2023: 7 Bikes 509-2024: 9 Bikes 509-2025: 11 Bikes
MATERIALS	<input type="checkbox"/> Standard 2.375" OD Schedule 40 Steel Pipe <input type="checkbox"/> Lightweight 2.375" OD Schedule 10 Steel Pipe
FINISHES	<input type="checkbox"/> Galvanized An after fabrication hot dipped galvanized finish is our standard option. <input type="checkbox"/> Powder Coat Our powder coat finish assures a high level of adhesion and durability by following these steps: 1. Sandblast 2. Epoxy primer electrostatically applied 3. Final thick TGIC polyester powder coat <input type="checkbox"/> Thermoplastic In addition to an increased thickness (8-10mils), the thermoplastic finish covers a galvanized layer and offers superior impact resistance over powder coating. <input type="checkbox"/> Stainless Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.
MOUNT OPTIONS	<input type="checkbox"/> In-ground In ground mount is embedded into concrete base. Specify in ground mount. for this option. <input type="checkbox"/> Surface Foot Mount has two 5"x8"x25" feet with four anchors per foot. Specify foot mount for this option.

thepark AND FACILITIES CATALOG
www.theparkcatalog.com | 1-800-695-3503

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



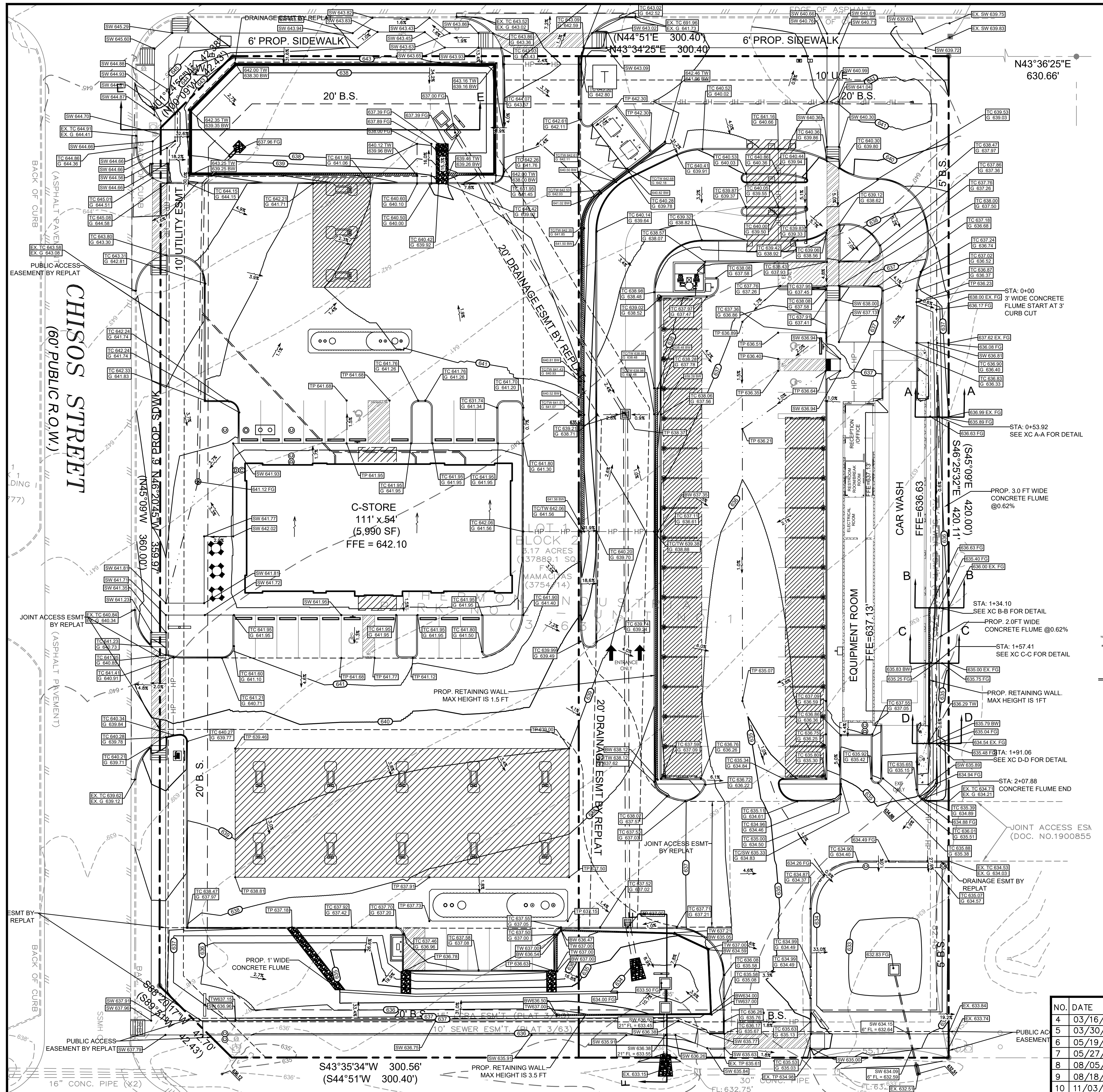
SITE DETAILS
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 LOT 1, BLOCC 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
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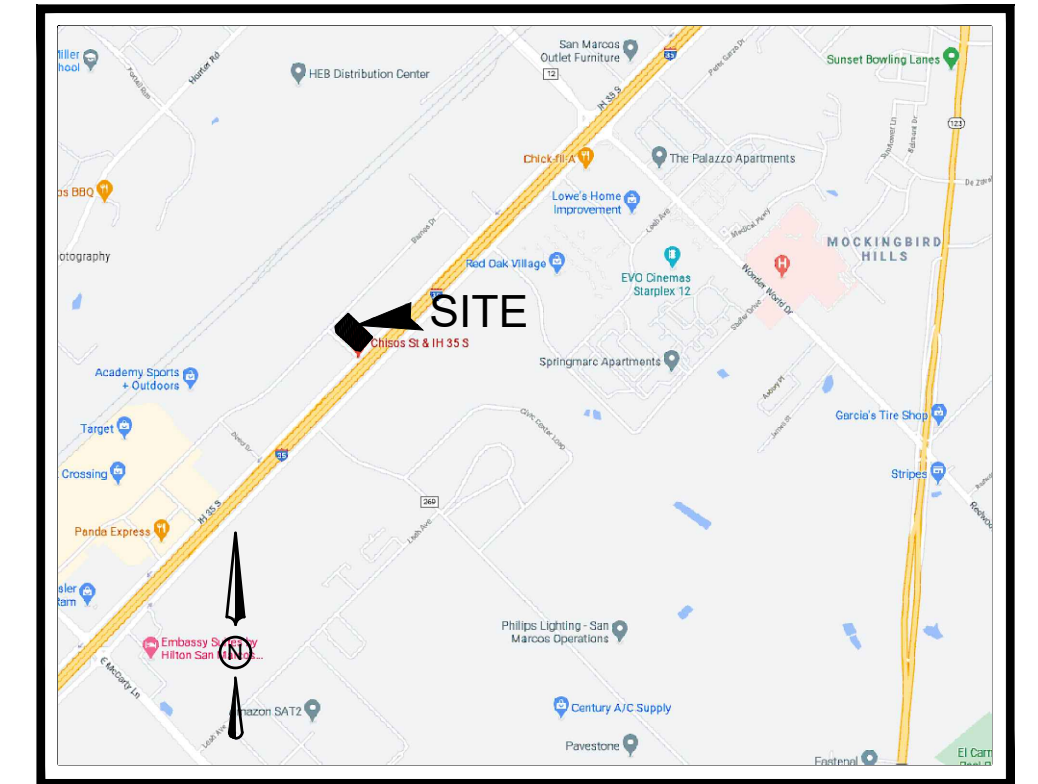
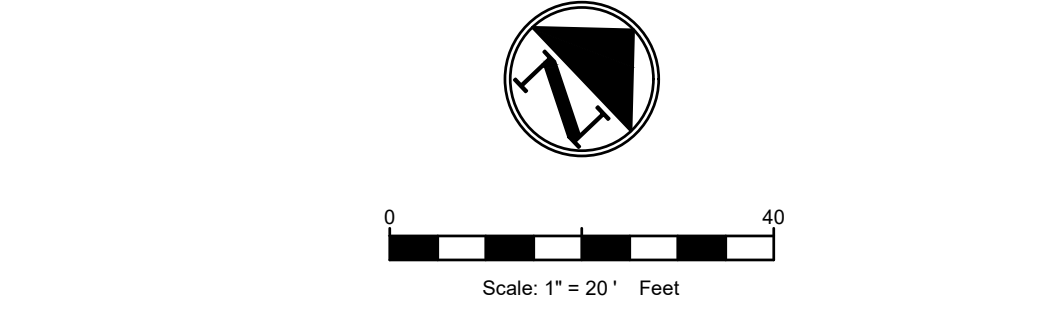
P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SCALE BAR	103-20	C-3.1

TX. P.E. FIRM #11525



LEGEND

- IRON PIPE FOUND
- IRON ROD FOUND
- IRON ROD SET
- PK FOUND
- CALCULATED POINT
- CONCRETE MONUMENT
- FIRE HYDRANT
- WATER METER
- CLEANOUT
- GAS VALVE
- POWER POLE
- DOWN GUT
- ELECTRIC METER
- LIGHT POLE
- WOOD FENCE
- CHAIN LINK FENCE
- WIRE FENCE
- METAL FENCE
- GAS METER
- TELEPHONE PEDESTAL
- CABLE PEDESTAL
- SANITARY SEWER MANHOLE
- STORM C
- ELECTRIC GROUND
- CONTROL POINT
- UNDERGROUND UTILITY MARKER SIGN
- UNDERGROUND UTILITY TEST STATION
- SIGN POST
- ELECTRIC TRANSFORMER
- TRAFFIC SIGNAL BOX
- P.U.E. PUBLIC UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- B.L. BUILDING LINE
- RECORD CALL
- EXISTING GAS
- EXISTING SANITARY SEWER
- EXISTING FIRE OPTIC
- EXISTING WATER
- OVERHEAD ELECTRIC LINE



VICINITY MAP
N.T.S.

GRADING LEGEND

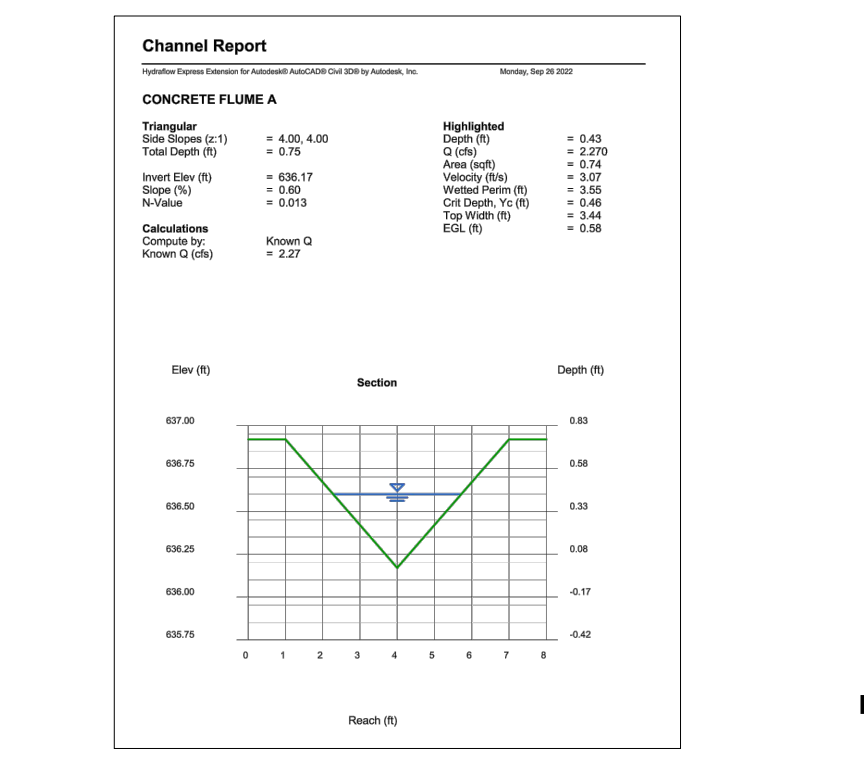
EXISTING ELEVATION	464.00 EX
EXISTING MINOR CONTOURS	464
EXISTING MAJOR CONTOURS	465
MINOR CONTOURS	464
MAJOR CONTOURS	465
SWALE	HP-HP-HP-HP
HIGH POINT	HP-HP-HP-HP
STORM PIPE	—
RETAINING WALL	—
FLOW PATH	—
RIP RAP	—
FINISH FLOOR ELEVATION	467.00 FF
TOP OF CURB ELEVATION	466.00 TC
GUTTER ELEVATION	465.50 G
SIDEWALK ELEVATION	465.00 SW
TOP OF PAVEMENT	464.00 TP
GROUND ELEVATION	463.00 FG
DRAINAGE FLOW DIRECTION	1%
GRATE INLET	—
SANITARY SEWER CLEANOUT	—
SANITARY SEWER DOUBLE CLEANOUT	—
DOMESTIC WATER METER	—
IRRIGATION METER	—

GRADING GENERAL NOTES

- ALL SURPLUS EXCAVATION AND WASTE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT SHALL BE HIS SOLE RESPONSIBILITY TO REMOVE SUCH SURPLUS EXCAVATION AND WASTE MATERIAL FROM THE SITE TO A PUBLIC DUMP SITE APPROVED FOR THE DISPOSAL OF SUCH MATERIALS. IF SURPLUS EXCAVATION IS REMOVED FROM THIS SITE TO ANOTHER PROPERTY, IT SHALL BE PLACED ON SUCH PROPERTY WITH THE WRITTEN CONSENT OF THE OWNER(S) OF SUCH PROPERTY. A COPY OF SUCH WRITTEN CONSENT SHALL BE PROVIDED TO THE OWNER. IF THE CONTRACTOR WISHES TO DISPOSE OF SURPLUS EXCAVATION ON-SITE, IT SHALL BE ONLY WITH THE PRIOR APPROVAL OF THE OWNERS PROJECT REPRESENTATIVE AND CARE SHOULD BE TAKEN TO AVOID BLOCKING NATURAL DRAINAGE AND INCREASING STEEP SLOPES. THE CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN STAKING AND TO VERIFY PROJECT ELEVATIONS. "MATCH EXISTING" SHALL BE UNDERSTOOD TO APPLY TO BOTH VERTICAL ELEVATION AND HORIZONTAL ALIGNMENT.
- THE CONTRACTOR SHALL PREPARE ALL LANDSCAPE AREAS INCLUDING STREET RIGHT-OF-WAY AREAS TO AN ACCEPTABLE SUBGRADE CONDITION IN ACCORDANCE WITH THE LANDSCAPE PLANS. IF THE CONTRACTOR IS NOT EMPLOYED TO PROVIDE AND INSTALL LANDSCAPING, HE SHALL PREPARE A FINISHED AND COMPACTED SUB-GRADE IN THE LANDSCAPING AREAS.
- NO SLOPES TO EXCEED 3H:1V WITHOUT SLOPE STABILIZATION.

CITY GRADING NOTES

IF THERE IS A BREAK OF MORE THAN 14 DAYS WHILE GRADING AND/OR BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START WHERE NO WORK IS DONE ON A SITE PORTION(S) WITHIN THE LIMITS OF CONSTRUCTION, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER T&R150000 PART III P.2 (B) ILLINOIS CITY CODE SECTION 66.529(A)(1)(G). USE TEMPORARY (OR PERMANENT) SEEDING, ROCK GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.



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8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

GRADING PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

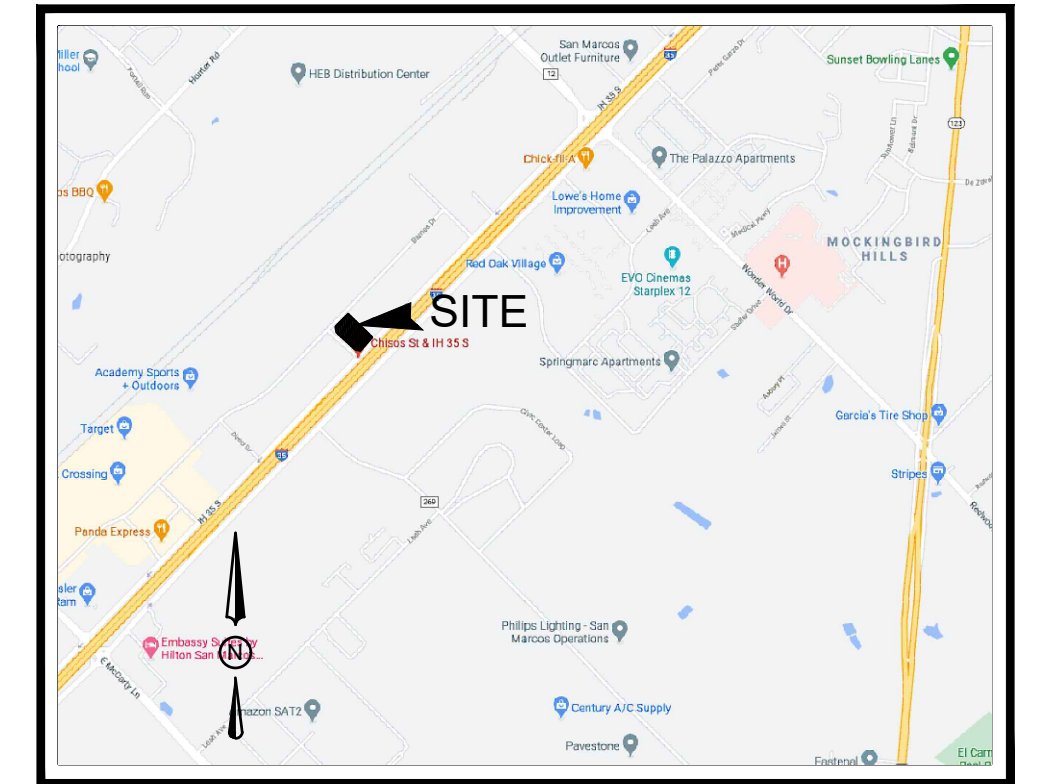
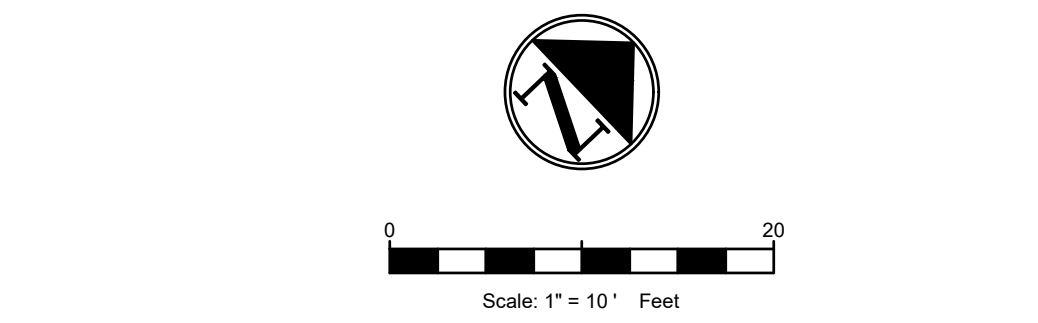
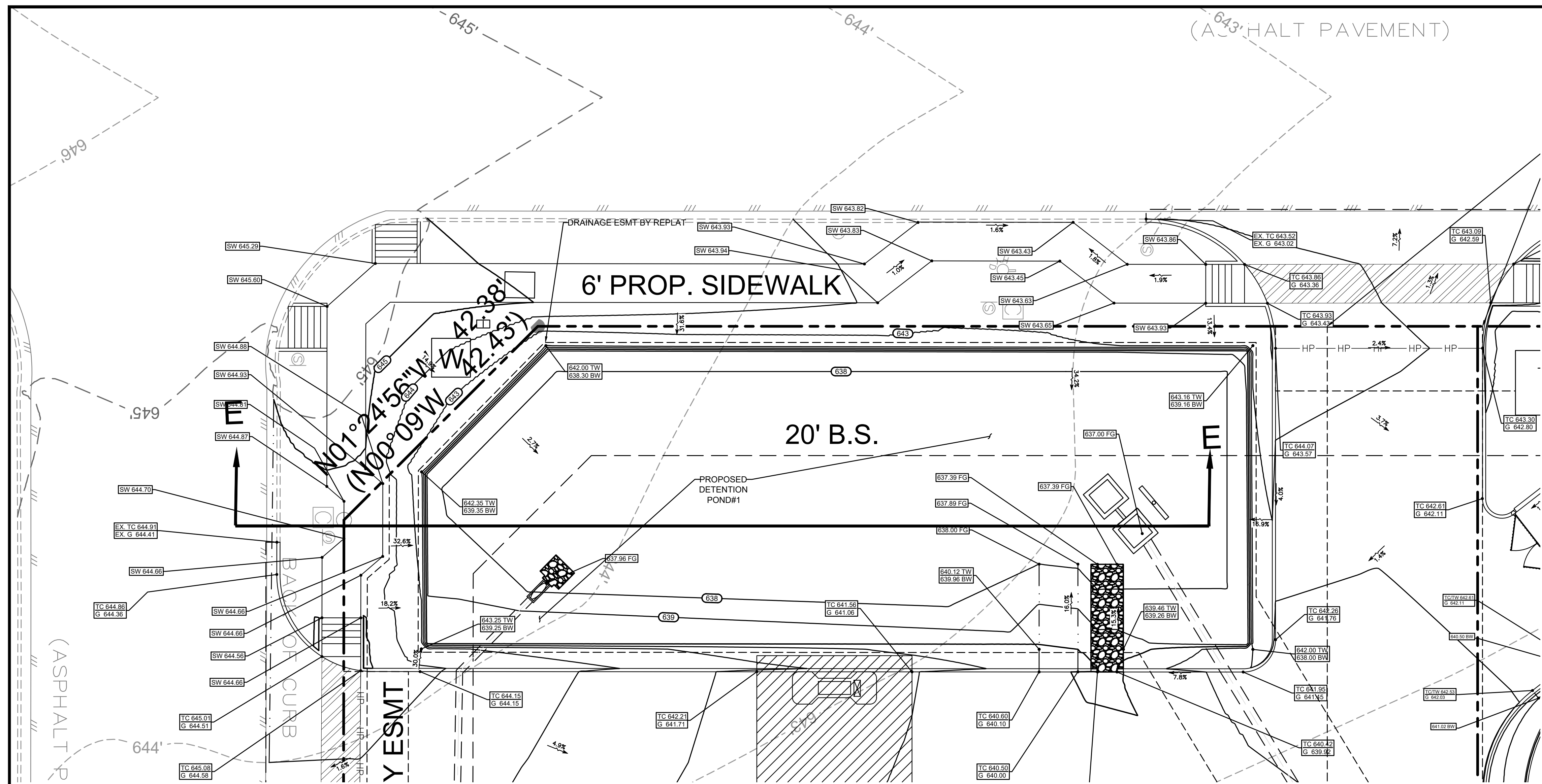
811
Know what's below.
Call before you dig.

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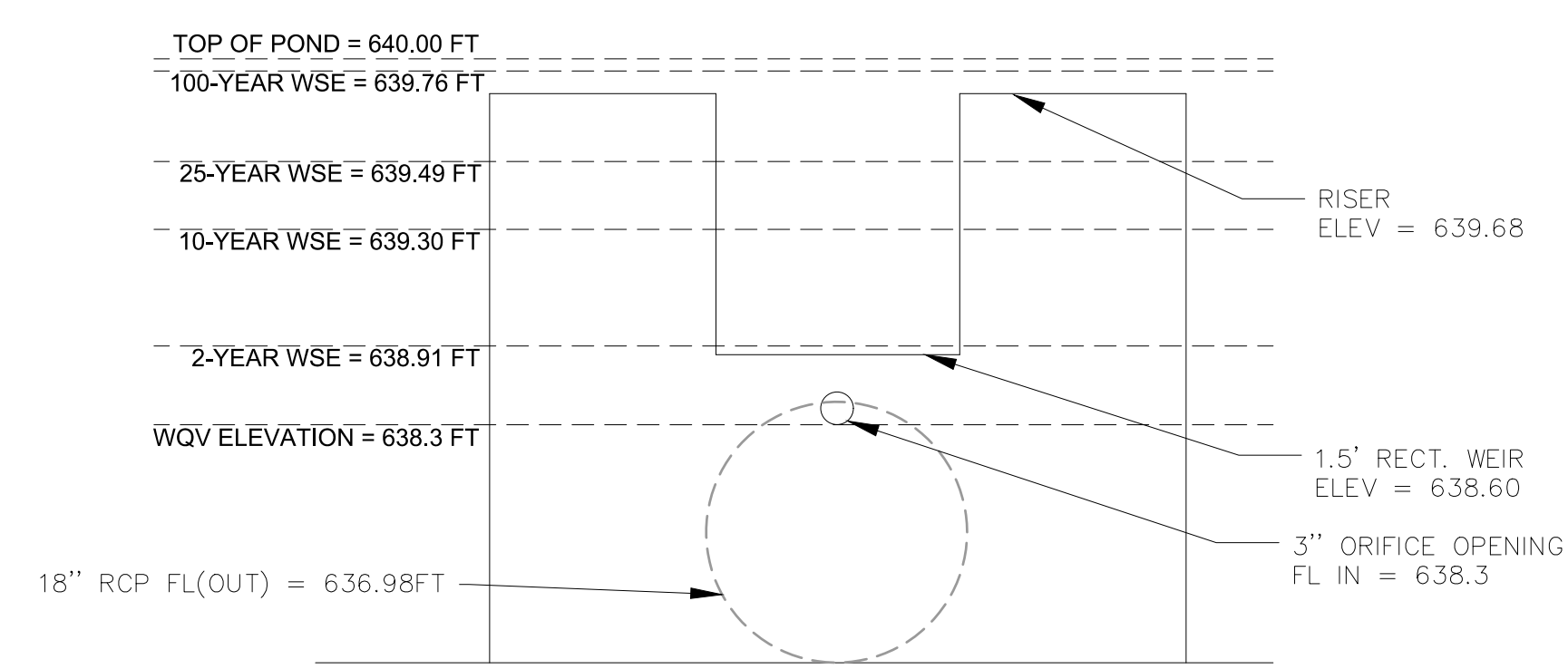
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P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-4.0

TX. P.E. FIRM #11525

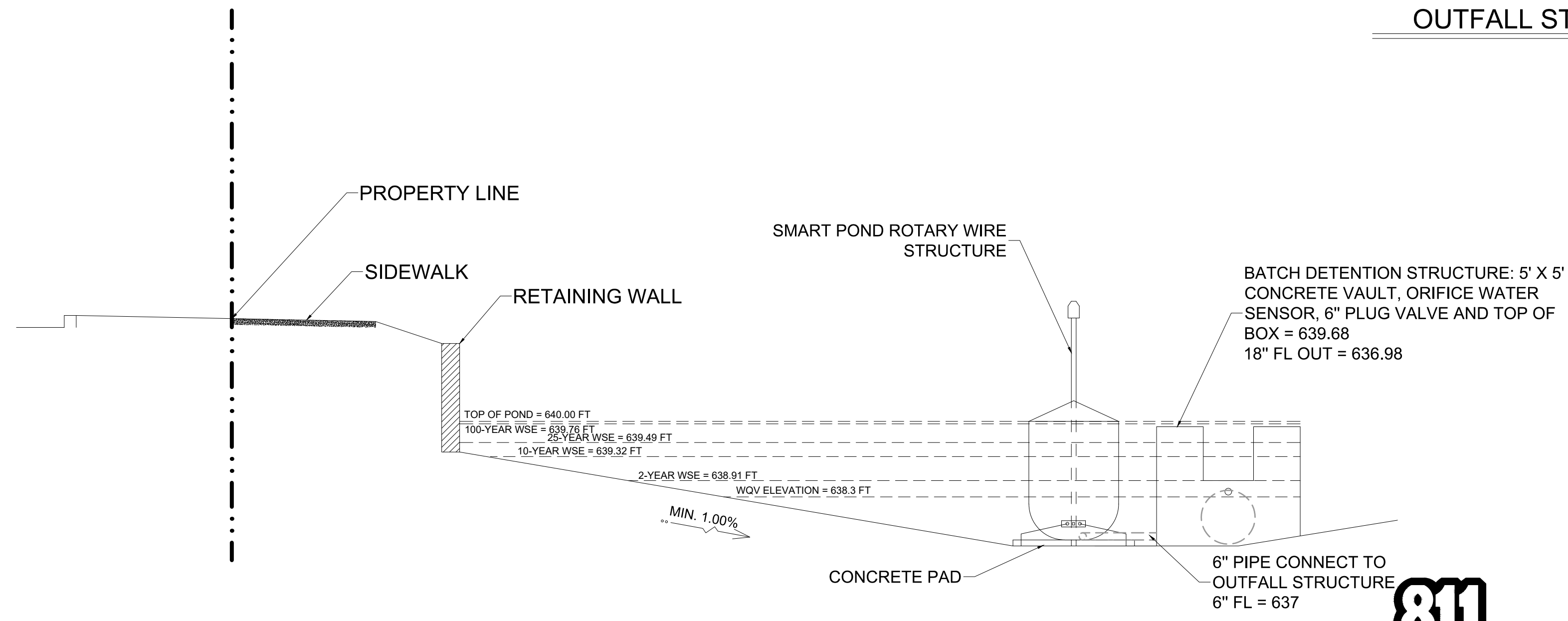


VICINITY MAP
N.T.S.



DETENTION POND#1
OUTFALL STRUCTURE DETAILS
N.T.S.

DETENTION POND#1 CALCULATION			
CONTRIBUTING AREA		DA-1	
IMPERVIOUS AREA		28749.6 S.F. (71.74%)	
EVENT(ye)	Q _{proposed} (cfs)	WSE(ft)	Max Stor(cuft)
2	1.039	638.91	5332
5	2.157	639.13	6446
10	3.128	639.3	7302
25	4.457	639.49	8332
50	5.672	639.64	9131
100	7.93	639.76	9741
Top of Pond (ft)		640	
Pond Volume (cuft)		11004	



DETENTION POND#1 PROFILE
XC E-E
N.T.S.

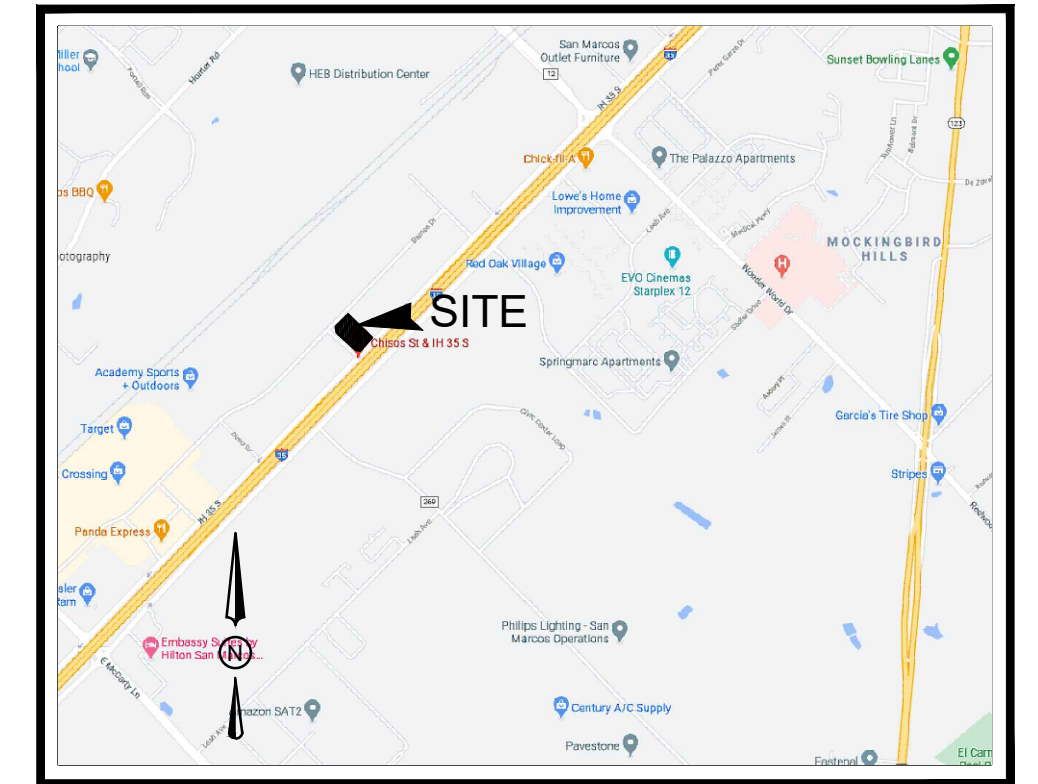
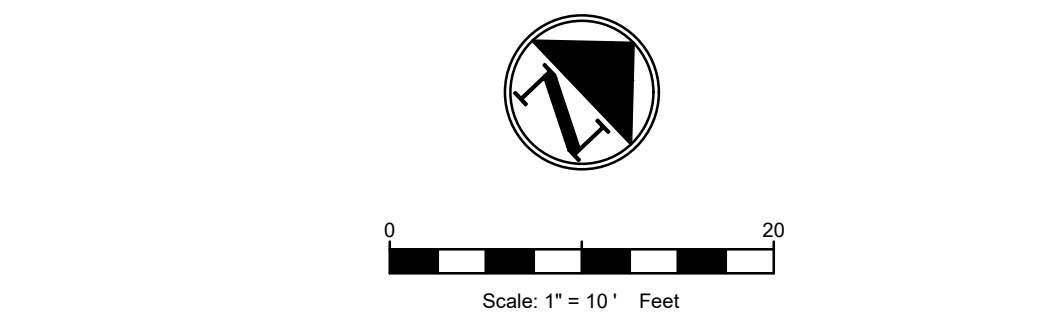
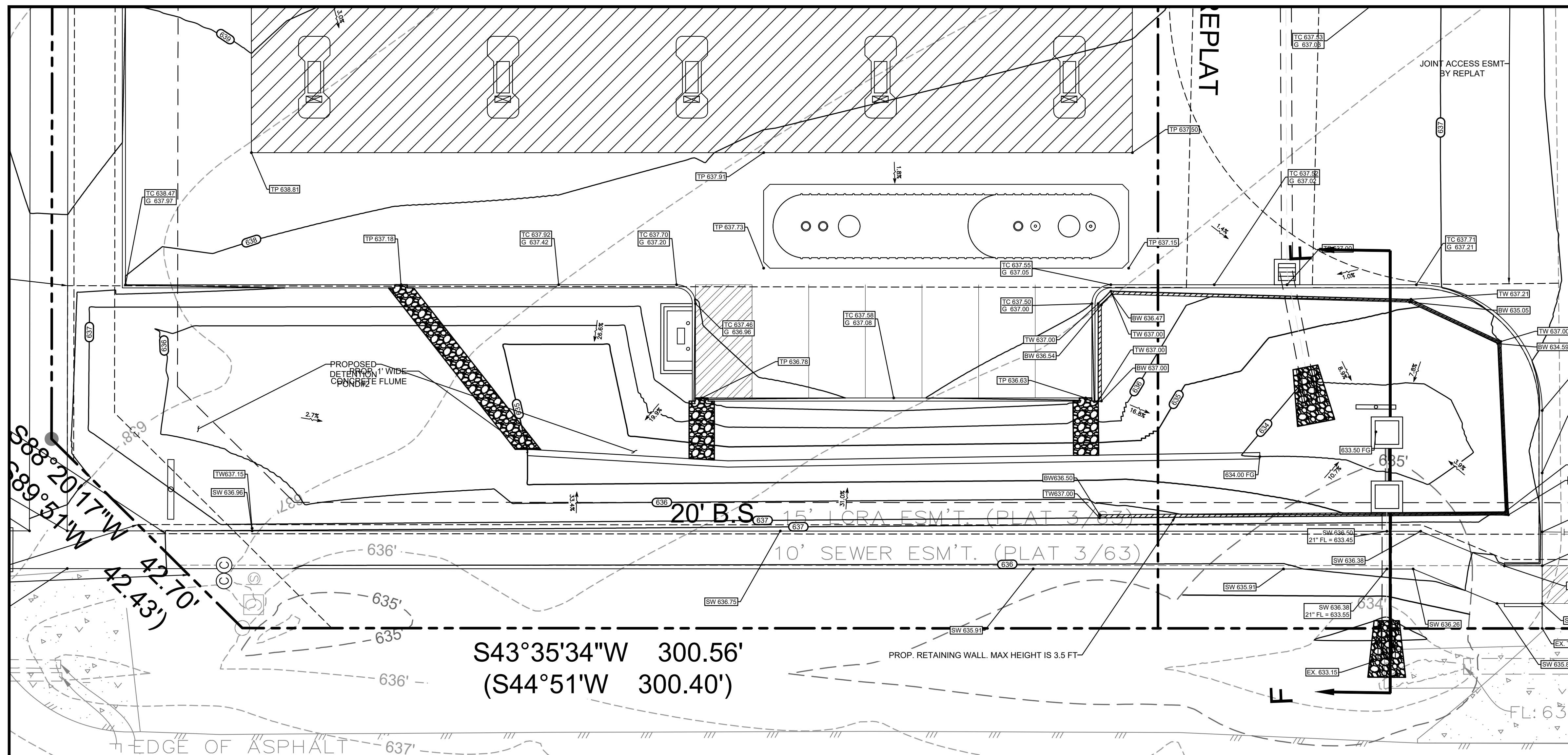


DETENTION POND #1

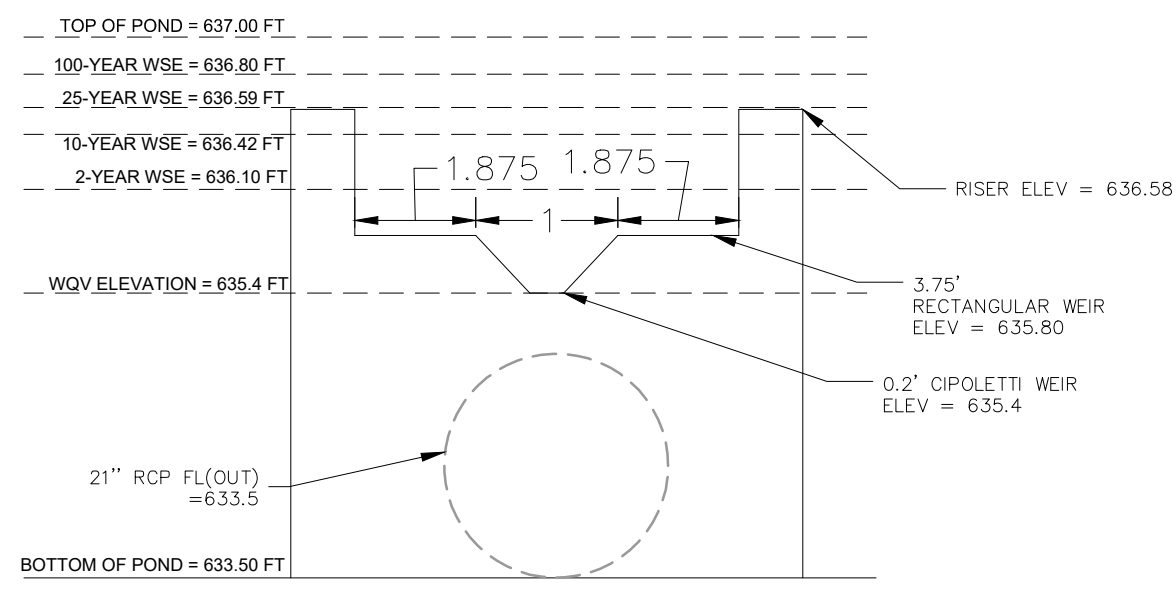
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POND PLAN-1					
CAR WASH & GAS STATION					
IH 35 & CHISOS					
CITY OF SAN MARCOS					
HAYS COUNTY, TEXAS 78666					
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2					
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Planning Civil Engineering Construction Management					
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TX. P.E. FIRM #11525					



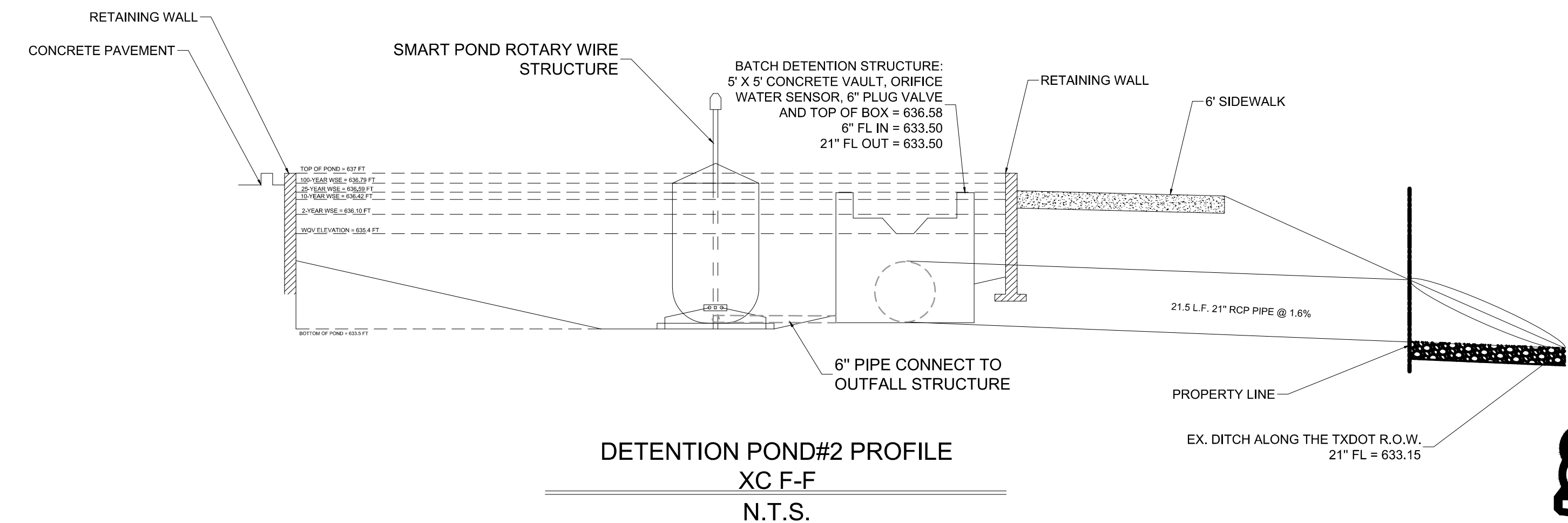
VICINITY MAP
N.T.S.



DETENTION POND#2
OUTFALL STRUCTURE DETAILS
N.T.S.

DETENTION POND #2

DETENTION POND#2 CALCULATION				
CONTRIBUTING AREA		DA-2, DA-3		
IMPERVIOUS AREA		36590.4 S.F. (73.04%)		
EVENT(ye)	Q _{proposed} (cfs)	WSE(ft)	Max Stor(cuft)	
2	2.428	636.10	5078	
5	4.753	636.28	6122	
10	6.815	636.42	6907	
25	9.67	636.59	7840	
50	12.73	636.68	8383	
100	16.16	636.80	9030	
Top of Pond (ft)		637		
Pond Volume (cuft)		10184		



DETENTION POND#2 PROFILE
XC F-F
N.T.S.

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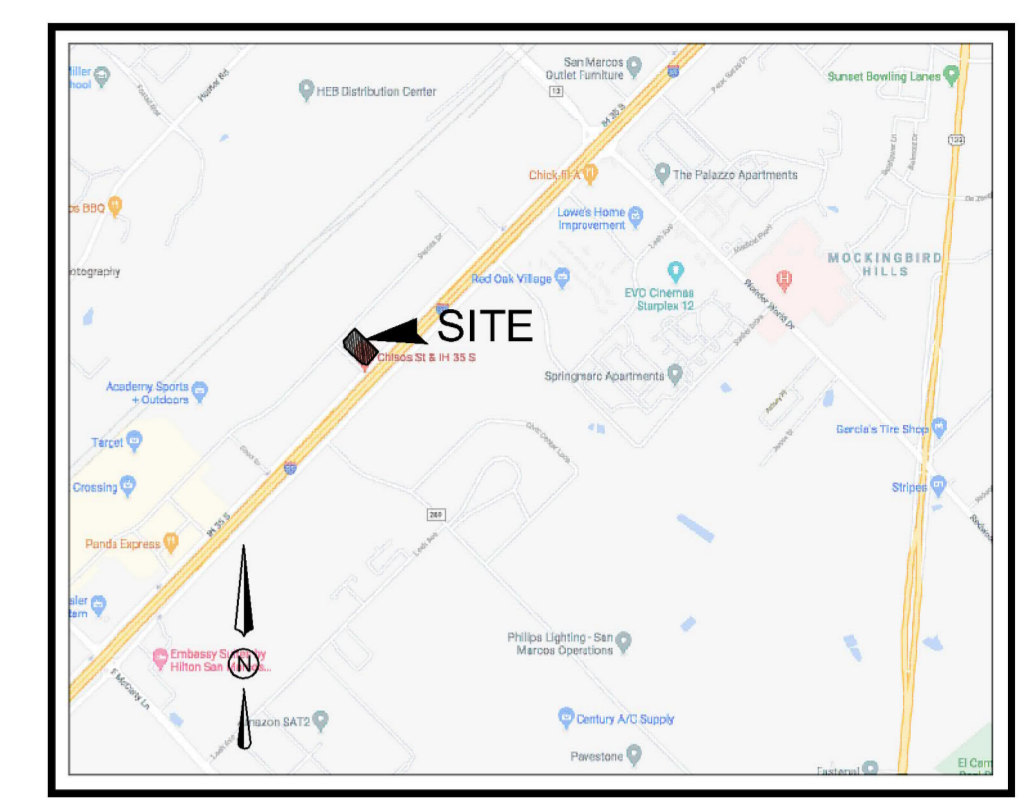
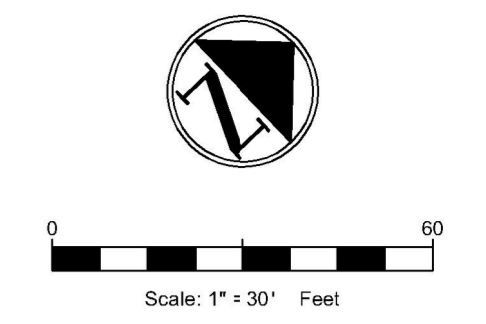
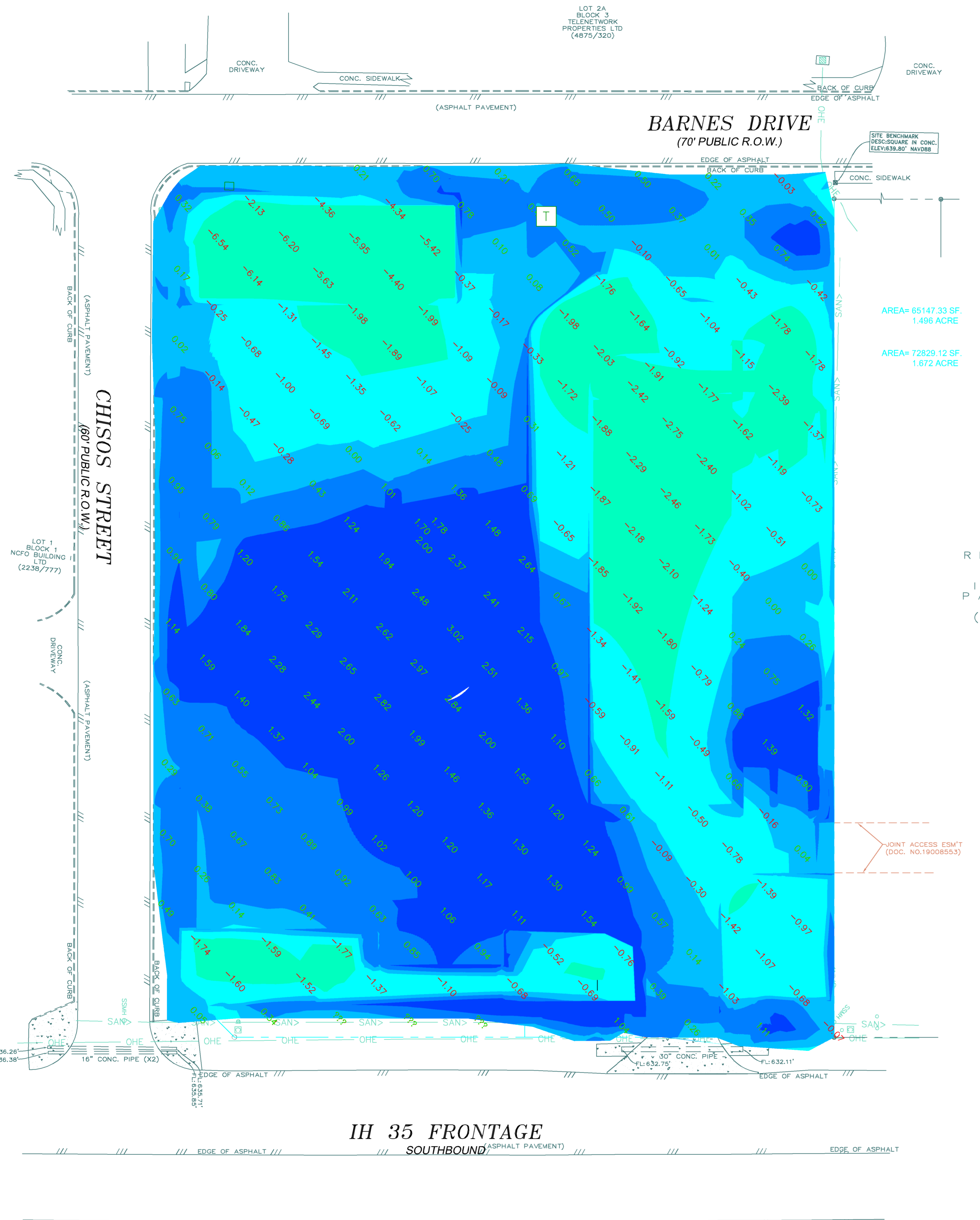
POND PLAN-2
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

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AY	ZC	10-26-20	SCALE BAR	103-20	C-4.2

TX. P.E. FIRM #11525



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8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



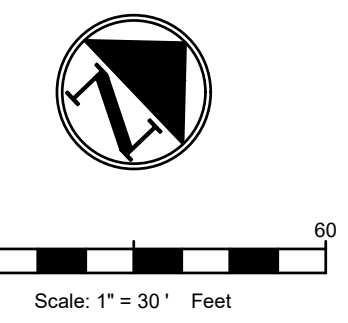
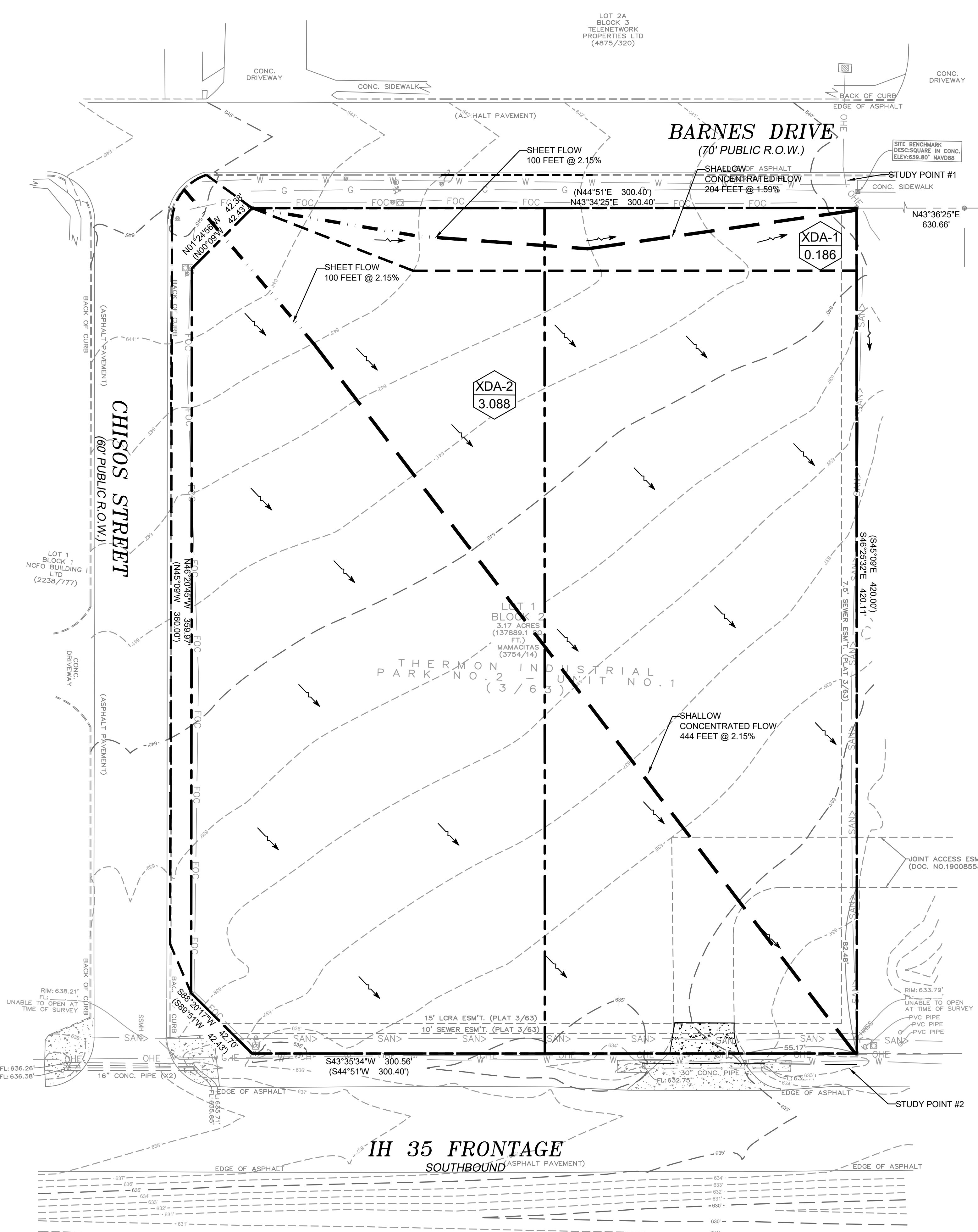
CUT AND FILL MAP
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

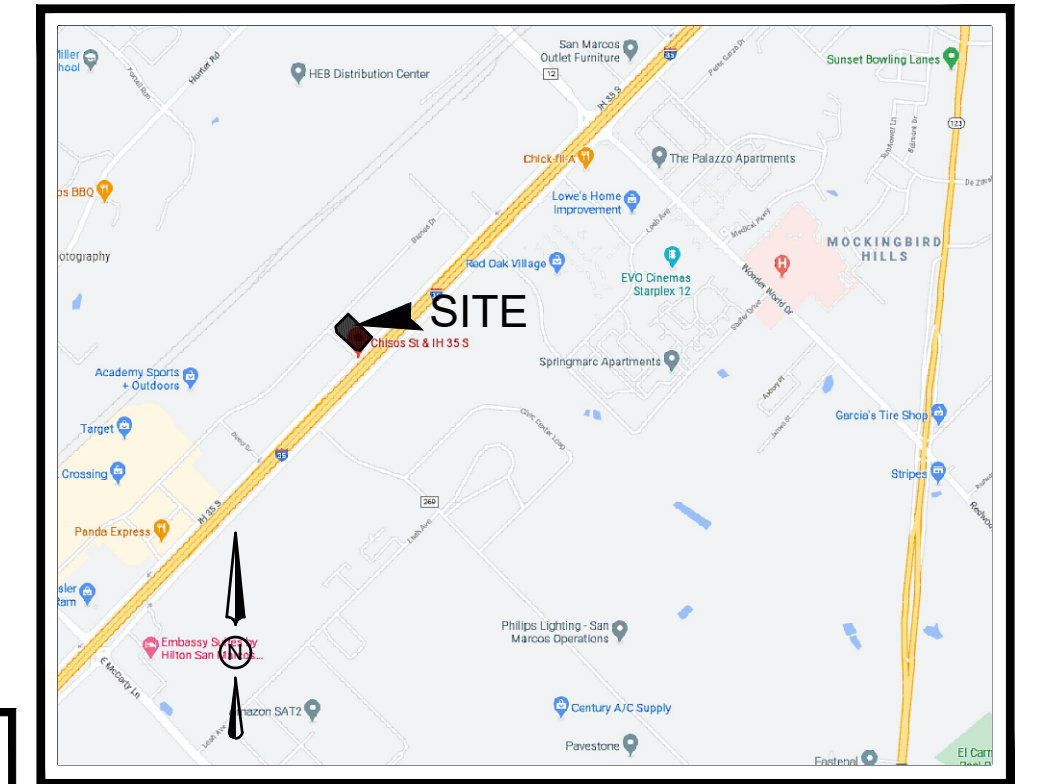
P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-4.3

TX. P.E. FIRM #11525



LEGEND

○ IRON PIPE FOUND	□ GAS METER
○ IRON ROD FOUND	□ TELEPHONE PEDESTAL
○ IRON ROD SET	□ CABLE PEDESTAL
× 4" IN CONCRETE	□ SANITARY SEWER MANHOLE
△ PK FOUND	□ STORM SEWER MANHOLE
○ CALCULATED POINT	○ ELECTRIC GROUND CONTROL POINT
■ CONCRETE MONUMENT	○ UNDERGROUND UTILITY MARKER SIGN
▲ FIRE HYDRANT	○ UNDERGROUND UTILITY TEST STATION
○ WATER METER	□ SIGN POST
○ WATER VALVE	□ ELECTRIC TRANSFORMER
○ CLEANOUT	□ TRAFFIC SIGNAL BOX
○ GAS VALVE	□ P.U.E. PUBLIC UTILITY EASEMENT
○ POWER POLE	□ D.E. DRAINAGE EASEMENT
○ DOWN GUY	□ B.L. BUILDING LINE
□ ELECTRIC METER	□ RECORD CALL
□ LIGHT POLE	□ EXISTING GAS
□ WOOD FENCE	□ EXISTING GAS
□ CHAIN LINK FENCE	□ EXISTING SANITARY SEWER
□ WIRE FENCE	□ EXISTING FIBER OPTIC
□ METAL FENCE	□ EXISTING WATER
	□ OVERHEAD ELECTRIC LINE



PRE-DRAINAGE LEGEND

EXISTING MINOR CONTOURS: 464

EXISTING MAJOR CONTOURS: 465

DRAINAGE DIVIDE: [Symbol]

DRAINAGE AREA NO.: XDA-X

DRAINAGE AREA ACREAGE: X.XX

DRAINAGE FLOW DIRECTION: [Symbol]

RAINFALL DEPTHS FOR SCS 24 HR PRECIPITATION (inches)

2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
4.15	5.54	6.92	9.07	11.00	13.20

VICINITY MAP
N.T.S.

NOTE:
THE WHOLE SITE IS IN UNDEVELOPMENT CONDITION WITH GRASS AREA AND THE HEB SOIL IS TYPE D.

REPLAT OF LOT 2 THERMON INDUSTRIAL PARK NO. 2 UNIT NO. 1 (18010054)

LOT 2-A BLOCK 2 CTEC SM PROPERTY LLC (DOC.NO.18010956)

PRE DEVELOPMENT RUNOFF RATE SUMMARY (SCS METHOD)

DRAINAGE BASIN	DRAINAGE AREA (AC)	CN#	TC (MIN)	2 yr (CFS)	5 yr (CFS)	10 yr (CFS)	25 yr (CFS)	50 yr (CFS)	100 yr (CFS)	REMARKS
XDA-1	0.186	80	10	0.37	0.578	0.79	1.12	1.41	1.74	SHEET FLOW CITY ROW AT DISCHARGE POINT #1
XDA-2	3.088	80	11.5	6.17	9.588	13.06	18.52	23.40	28.94	SHEET FLOW EX. DITCH ALONG THE TXDOT ROW AT DISCHARGE POINT #2

PRE DEVELOPMENT RUNOFF TO STUDY POINTS (cfs)

	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
Study Point 1	0.37	0.578	0.79	1.12	1.41	1.74
Study Point 2	6.17	9.588	13.06	18.52	23.40	28.94

XDA-1 TC CALCULATION

TR-55 Tc Worksheet

Sheet Flow

Manning's n-value: 0.15 | 0.011 | 0.011

Flow length (ft, 300 max.): 100

Two-yr 24-hr rain (in): 4.15

Land slope (%): 2.15

Sheet flow time: 0.36 | 0.00 | 0.00

Channel Flow

X-sectional area (sqft): A B C

Wetted perimeter (ft):

Channel slope (%):

Manning's n-value: 0.015 | 0.015 | 0.015

Flow length (ft):

Channel flow time: 0.00 | 0.00 | 0.00

Shallow Concentrated Flow

Flow length (ft): 204

Watercourse slope (%): 1.59

Surface description: Unpaved | Paved | Paved

Shallow conc. flow time: 1.67 | 0.00 | 0.00

Summary:

Sheet flow time = 0.36 min

Shallow conc. flow time = 1.67 min

Channel flow time = 0.00 min

Time of concentration = 1.99 min

XDA-2 TC CALCULATION

TR-55 Tc Worksheet

Sheet Flow

Manning's n-value: 0.15 | 0.011 | 0.011

Flow length (ft, 300 max.): 100

Two-yr 24-hr rain (in): 4.15

Land slope (%): 2.15

Sheet flow time: 0.36 | 0.00 | 0.00

Channel Flow

X-sectional area (sqft): A B C

Wetted perimeter (ft):

Channel slope (%):

Manning's n-value: 0.015 | 0.015 | 0.015

Flow length (ft):

Channel flow time: 0.00 | 0.00 | 0.00

Shallow Concentrated Flow

Flow length (ft): 444

Watercourse slope (%): 2.15

Surface description: Unpaved | Paved | Paved

Shallow conc. flow time: 3.13 | 0.00 | 0.00

Summary:

Sheet flow time = 0.36 min

Shallow conc. flow time = 3.13 min

Channel flow time = 0.00 min

Time of concentration = 3.49 min

IH 35
(300' PUBLIC R.O.W.)



NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



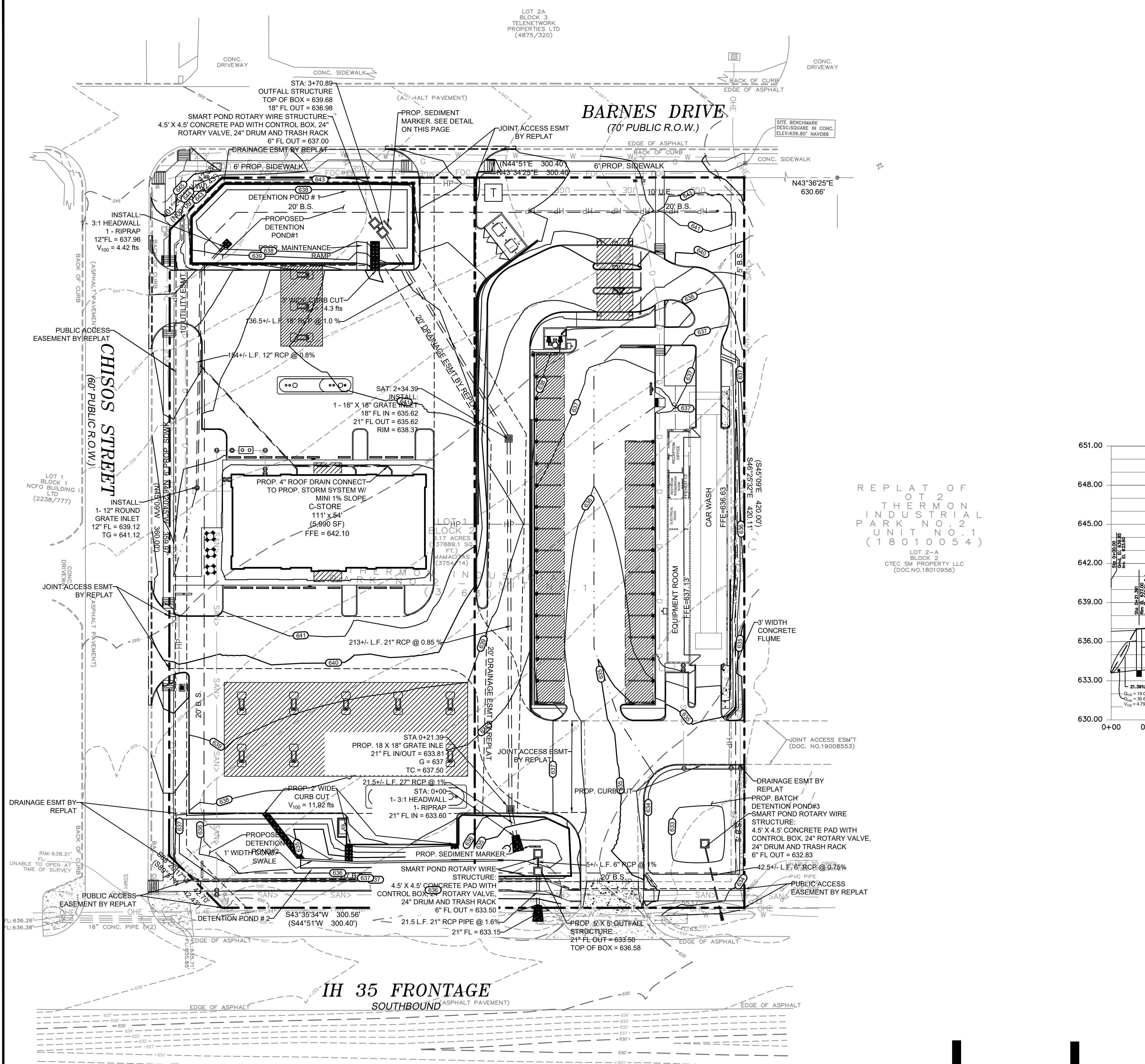
PRE-DRAINAGE PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

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P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-5.0

TX. P.E. FIRM #11525

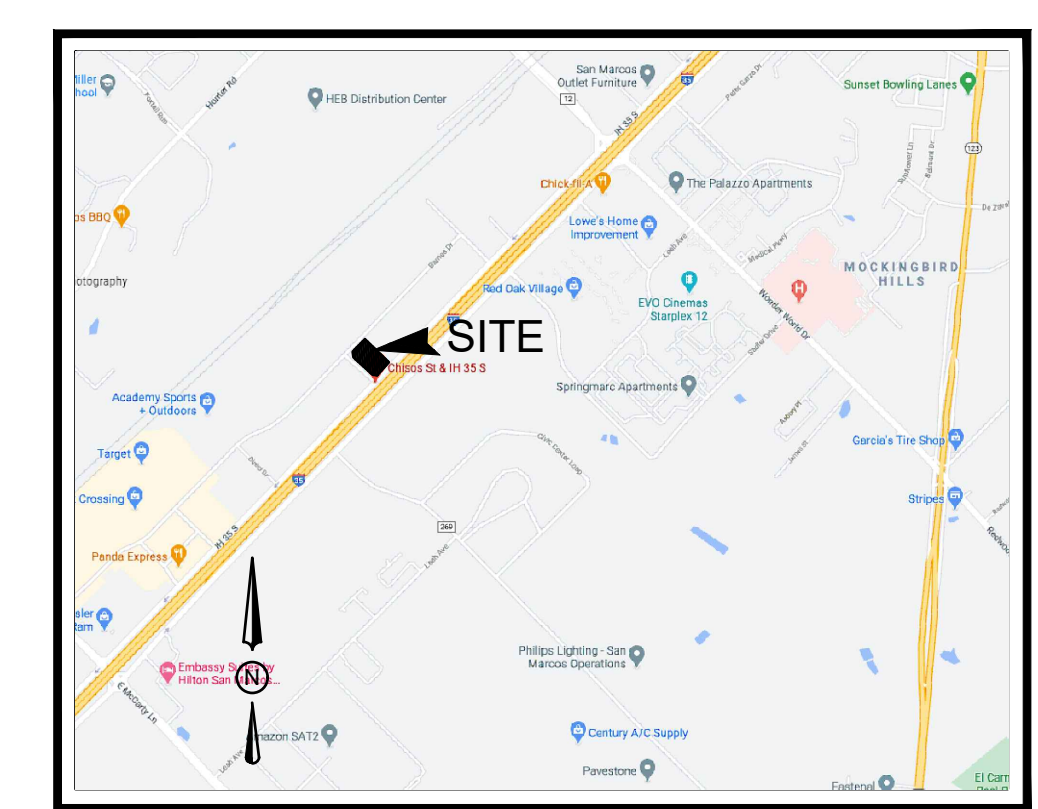
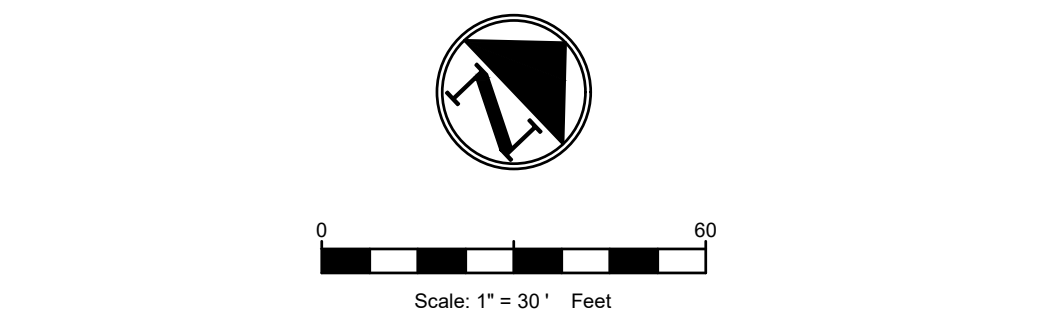


LEGEND

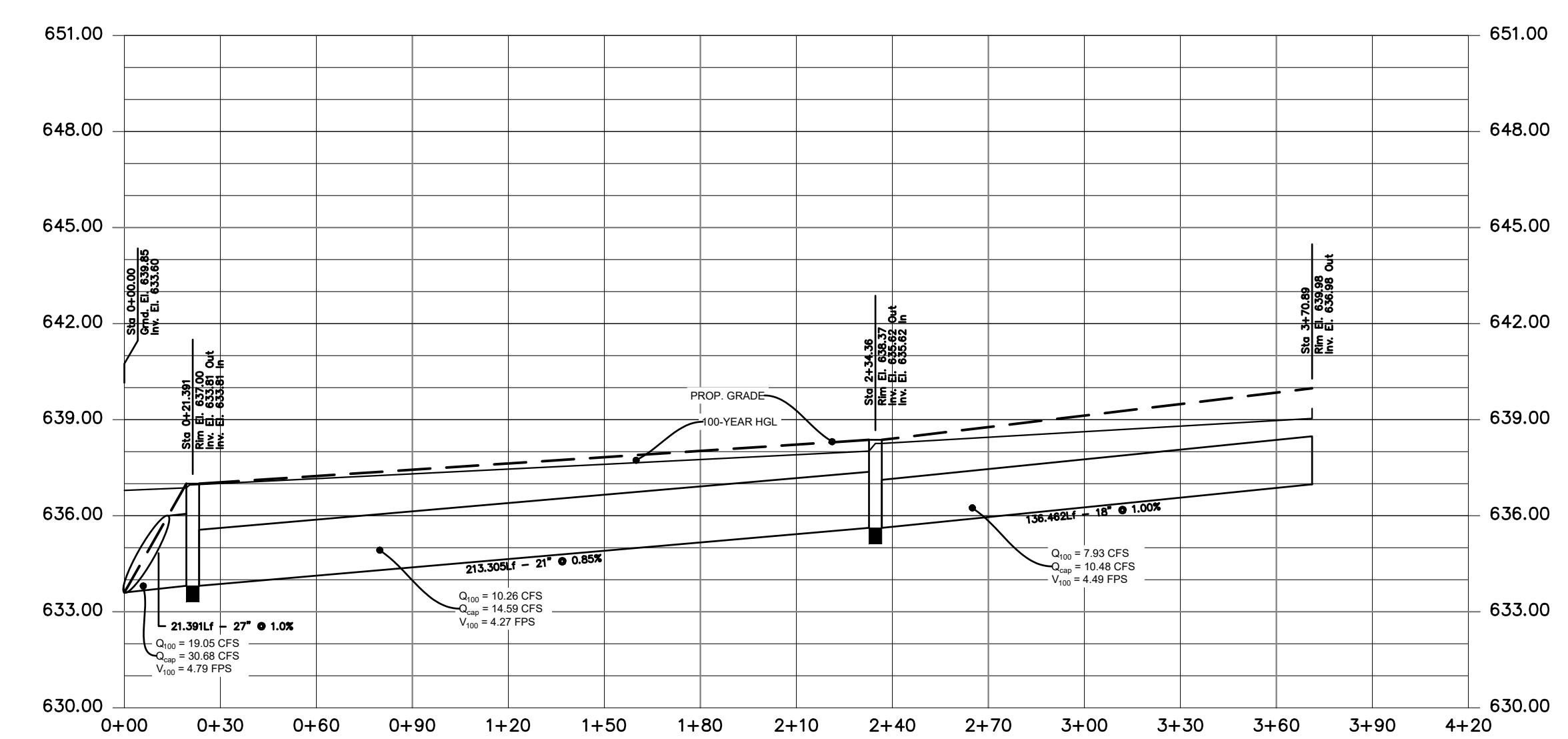
○	IRON PIPE FOUND	○	GAS METER
●	IRON ROD FOUND	□	TELEPHONE PEDESTAL
○	IRON ROD SET	□	CABLE PEDESTAL
×	"X" IN CONCRETE	SMH	SANITARY SEWER MANHOLE
▲	PK FOUND	SMH	STORM SEWER MANHOLE
●	CALCULATED POINT	○	ELECTRIC GROUND
■	CONCRETE MONUMENT	○	CONTROL POINT
○	FIRE HYDRANT	○	UNDERGROUND UTILITY MARKER SIGN
○	WATER METER	○	UNDERGROUND UTILITY TEST STATION
○	WATER VALVE	○	IRON POST
○	CLEANOUT	○	ELECTRIC TRANSFORMER
○	GAS VALVE	○	TRAFFIC SIGNAL BOX
○	POWER POLE	P.U.E.	PUBLIC UTILITY EASEMENT
○	DOWN GUY	D.E.	DRAINAGE EASEMENT
○	ELECTRIC METER	B.L.	BUILDING LINE
○	LIGHT POLE	---	(BRG.-DIST.) RECORD CALL
---	WOOD FENCE	---	GAS EXISTING GAS
---	WIRE FENCE	---	EXISTING SANITARY SEWER
---	METAL FENCE	---	EXISTING FIBER OPTIC
		---	EXISTING WATER
		---	OVERHEAD ELECTRIC LINE

STORM SEWER LEGEND

---	EXISTING MINOR CONTOURS	464
---	EXISTING MAJOR CONTOURS	465
---	MINOR CONTOURS	464
---	MAJOR CONTOURS	465
---	STORM PIPE	
HP	HIGH POINT	
---	FLOW PATH	
□	GRATE INLET	
○	SANITARY SEWER CLEANOUT	
○	SANITARY SEWER DOUBLE CLEANOUT	
□	DOMESTIC WATER METER	
□	IRRIGATION METER	



VICINITY MAP
N.T.S.

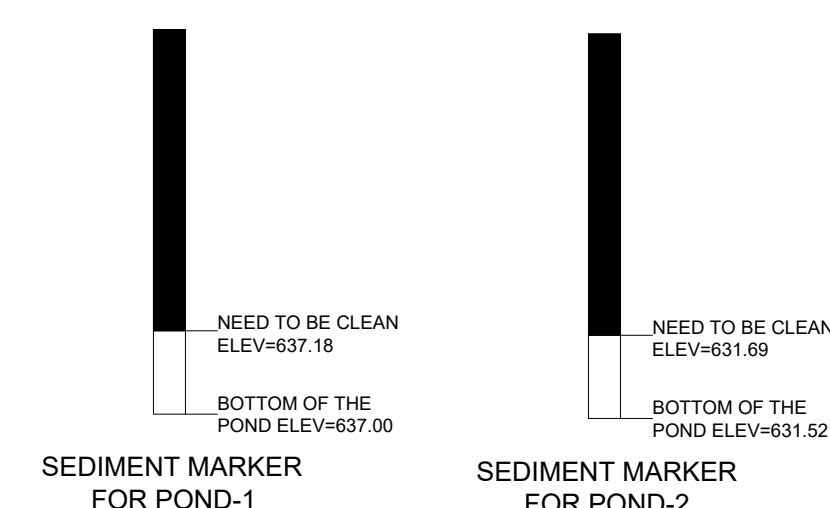


STORM LINE A
SCALE: 1(in) = 30(ft) H, 1(in) = 3(ft) V

STORM SEWER GENERAL NOTES

- ALL STORM DRAIN CONSTRUCTION, TESTING, AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY'S CURRENT STANDARDS, TESTING, AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
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- TWO WEEKS PRIOR TO CONNECTING TO EXISTING STORM DRAIN LINES, THE CONTRACTOR SHOULD INSPECT THE EXISTING LINE AND CONTACT THE STORM WATER INSPECTOR SHOULD THE LINE NEED TO BE CLEANED.
- CONTRACTOR SHOULD INSPECT ALL STORM DRAIN OUTFALLS NO EARLIER THAN TWO WEEKS PRIOR TO FINAL INSPECTION AND REMOVE ALL SILT AND DEBRIS.

IH 35
(300' PUBLIC R.O.W.)



NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
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9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



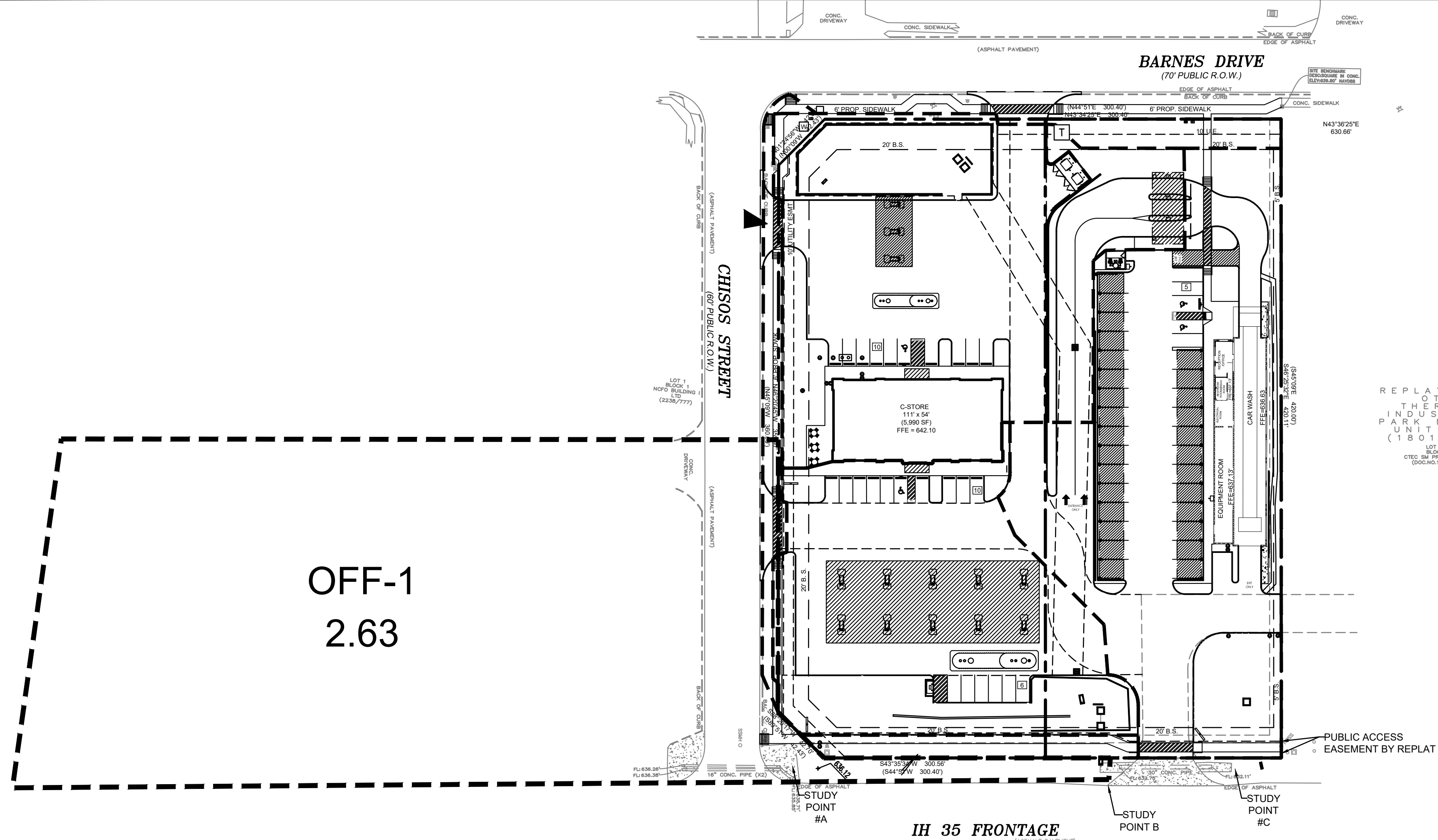
STORM SEWER PLAN-1
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

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P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-6.1

TX. P.E. FIRM #11525

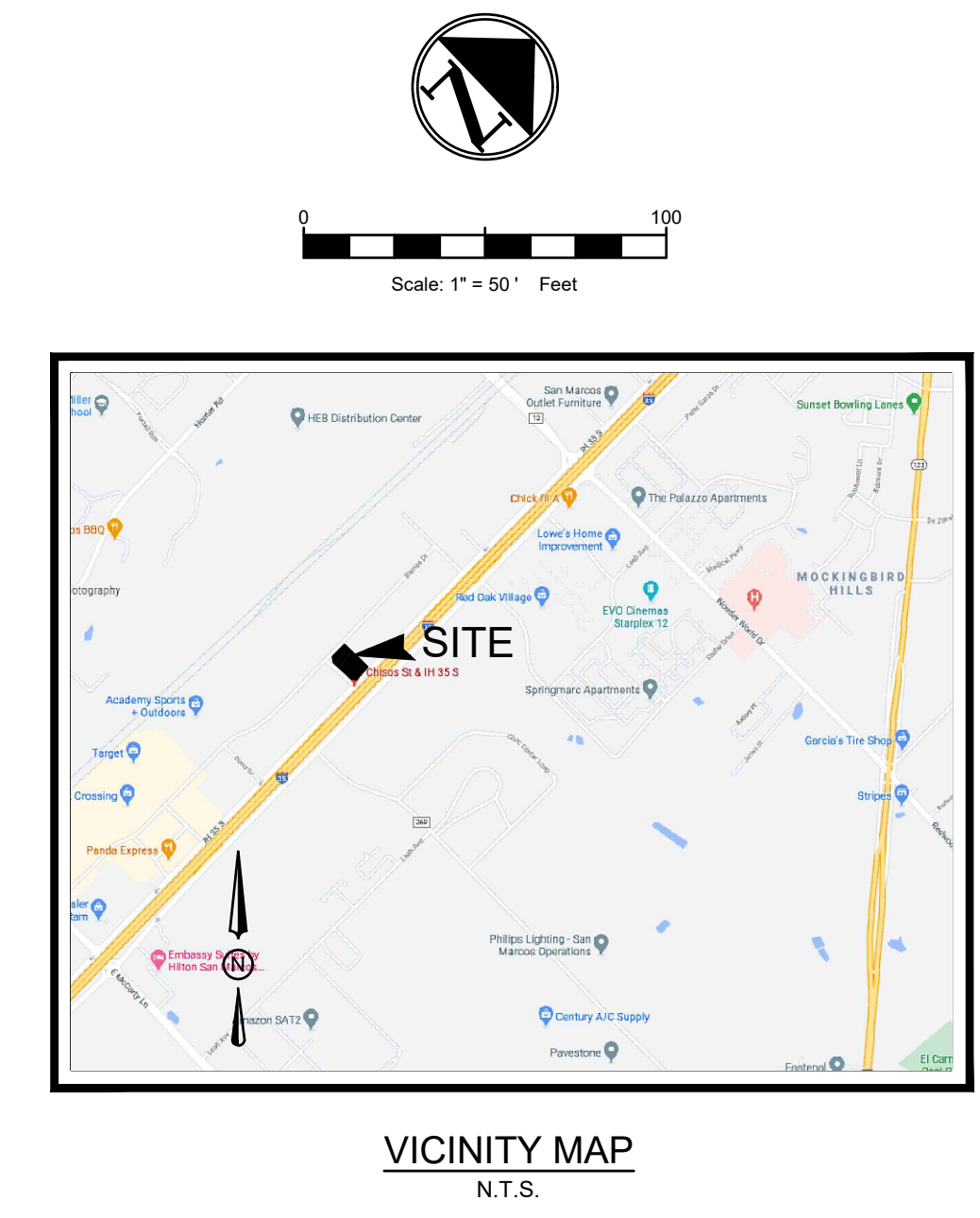


LEGEND

○	IRON PIPE FOUND	○	GAS METER
●	IRON ROD FOUND	□	TELEPHONE PEDESTAL
○	IRON ROD SET	□	CHALK PEDESTAL
×	"X" IN CONCRETE	SSMH	SANITARY SEWER MANHOLE
▲	PK FOUND	SSMH	STORM SEWER MANHOLE
○	CALCULATED POINT	○	ELECTRIC GROUND
■	CONCRETE MONUMENT	○	CONTROL POINT
▲	FIRE HYDRANT	○	UNDERGROUND UTILITY MARKER SIGN
□	WATER METER	○	UNDERGROUND UTILITY TEST STATION
○	WATER VALVE	○	IRON POST
○	CLEANOUT	○	ELECTRIC TRANSFORMER
○	GAS VALVE	○	TRAFFIC SIGNAL BOX
○	POWER POLE	○	P.U.E. PUBLIC UTILITY EASEMENT
○	DOWN GUY	○	D.E. DRAINAGE EASEMENT
○	ELECTRIC METER	○	B.L. BUILDING LINE
○	LIGHT POLE	○	(BRG.-DIST.) RECORD CALL
○	WOOD FENCE	○	GAS EXISTING GAS
○	WIRE FENCE	○	EXISTING SANITARY SEWER
○	METAL FENCE	○	EXISTING FIBER OPTIC
		○	EXISTING WATER
		○	OVERHEAD ELECTRIC LINE

STORM SEWER LEGEND

---	EXISTING MINOR CONTOURS	464
---	EXISTING MAJOR CONTOURS	465
---	MINOR CONTOURS	464
---	MAJOR CONTOURS	465
---	STORM PIPE	
HP	HIGH POINT	
---	FLOW PATH	
□	GRATE INLET	
○	SANITARY SEWER CLEANOUT	
○	SANITARY SEWER DOUBLE CLEANOUT	
○	DOMESTIC WATER METER	
□	IRRIGATION METER	



Culvert Report

Hydroware Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Aug 9 2022

EX. CULVERT

Invert Elev Dn (ft)	= 632.51	Calculations	
Pipe Length (ft)	= 60.00	Qmin (cfs)	= 20.27
Slope (%)	= 0.38	Qmax (cfs)	= 25.27
Invert Elev Up (ft)	= 632.74	Tailwater Elev (ft)	= Normal
Rise (in)	= 30.0		
Shape	= Circular	Highlighted	
Span (in)	= 30.0	Qtotal (cfs)	= 24.27
No. Barrels	= 1	Qpipe (cfs)	= 24.27
n-Value	= 0.013	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Concrete	Veloc Dn (ft/s)	= 5.88
Culvert Entrance	= Groove end w/headwall (C)	Veloc Up (ft/s)	= 6.94
Coeff. K _{M,c} ,Y _k	= 0.0018, 2, 0.0282, 0.74, 0.2	HGL Dn (ft)	= 634.47
		HGL Up (ft)	= 634.42
Embankment		Hw Elev (ft)	= 635.20
Top Elevation (ft)	= 635.30	HwD (ft)	= 0.99
Top Width (ft)	= 47.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 18.00		

OVERALL DRAINAGE SUMMARY

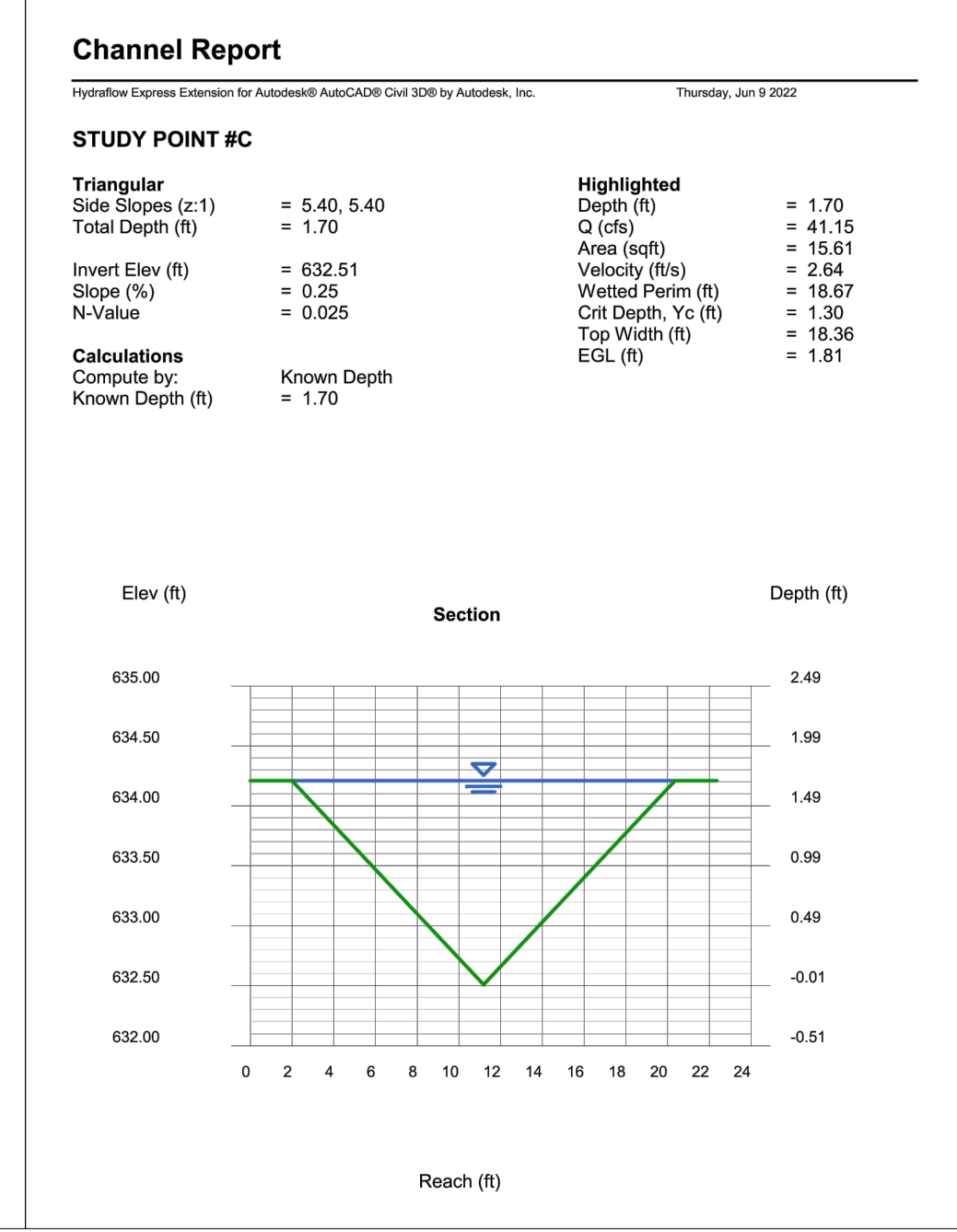
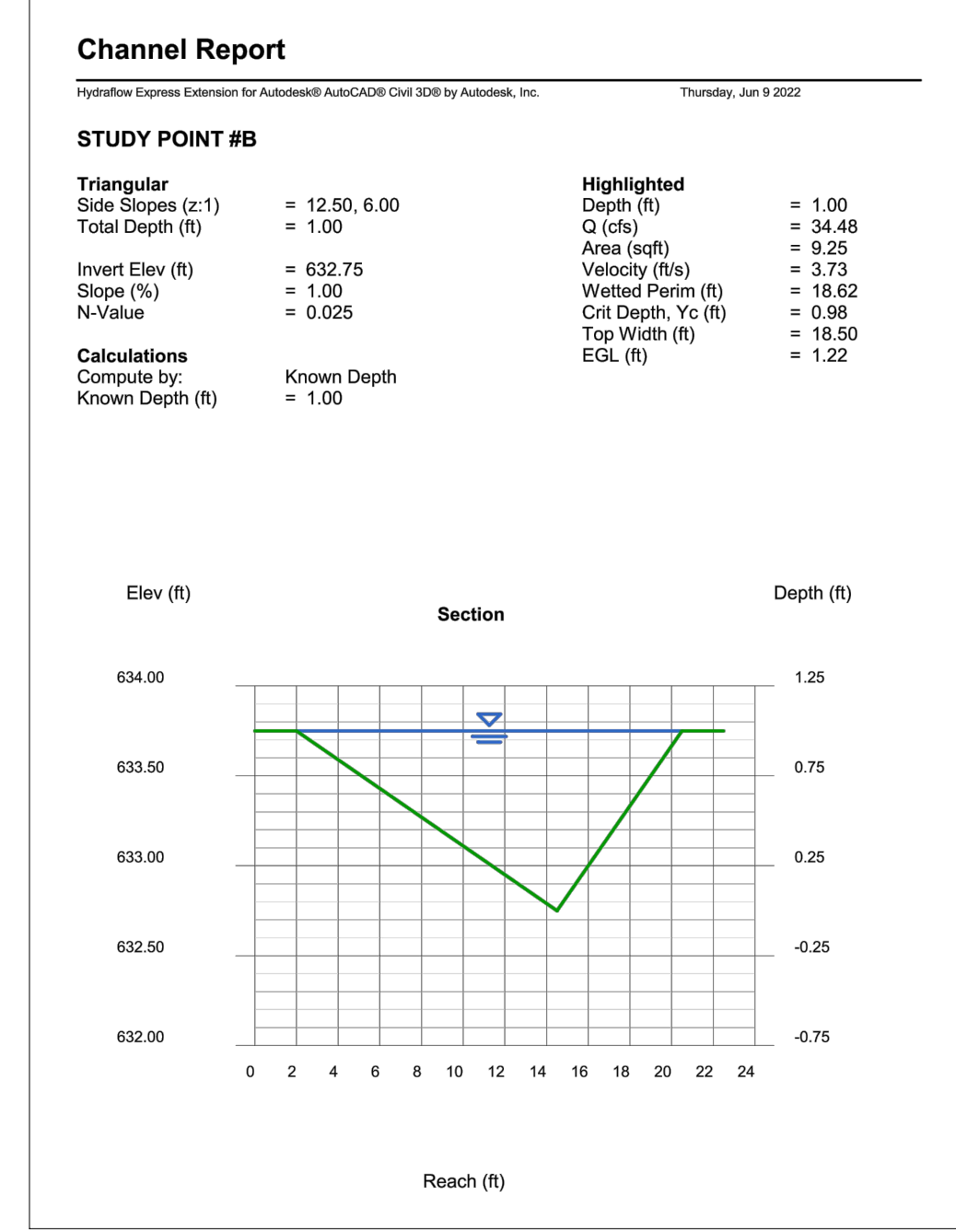
STUDY POINT	CONTRIBUTING DRAINAGE AREA	AREA (SQFT)	10-YR RUNOFF (CFS)	DESCRIPTION
A	OFF-1	2.63	17.56	RUNOFF FROM UPSTREAM
B	DA-1,2,3,6	1.99	6.71	RUNOFF FROM PROPERTY AND DRAIN TO THE EX. CULVERT
C	DA-4	1.13	6.49	RUNOFF FROM PROPERTY AND DRAIN TO THE EX. DITCH

CULVERT NOTES:

- THE MAXIMUM ALLOWABLE HEADWATER IS 635.15, WHICH DOESN'T HAVE ANY ADVERSELY IMPACT FOR THE SURROUNDING ROADWAY AND PROPERTY. THE OFFSITE DRAINAGE AREA WAS ESTIMATED BASED ON THE OVERALL TOPO, STREET VIEW PICTURE. THE C-VALUE IS 0.9 AND RAINFALL INTENSITY IS 7.42 IN/HR FROM 10-YR ATLAS 14 CHART.

DITCH NOTES:

ON STUDY POINT #B: THE 10-YR CAPACITY OF DITCH BEFORE THE CULVERT IS 34.48CFS, THE TOTAL 10-YR RUNOFF DRAIN TO THIS POINT IS 24.27 CFS.
 ON STUDY POINT #C: THE 10-YR CAPACITY OF DITCH AFTER THE CULVERT IS 41.15 CFS, THE TOTAL 10-YR RUNOFF DRAIN TO THIS POINT IS 30.76 CFS.



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NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
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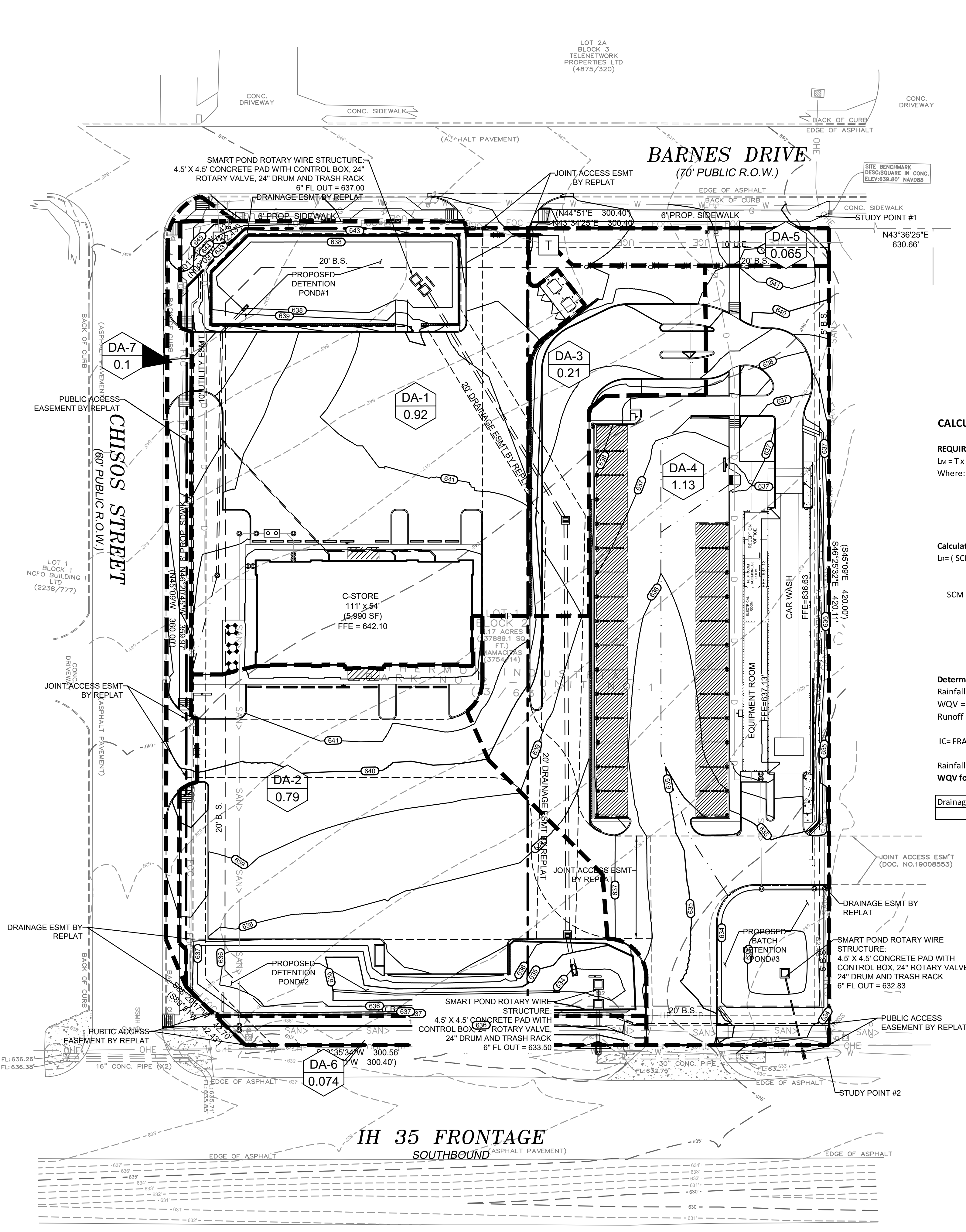
STORM SEWER PLAN-2
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

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AY	ZC	10-26-20	SCALE BAR	103-20	C-6.2

TX. P.E. FIRM #11525

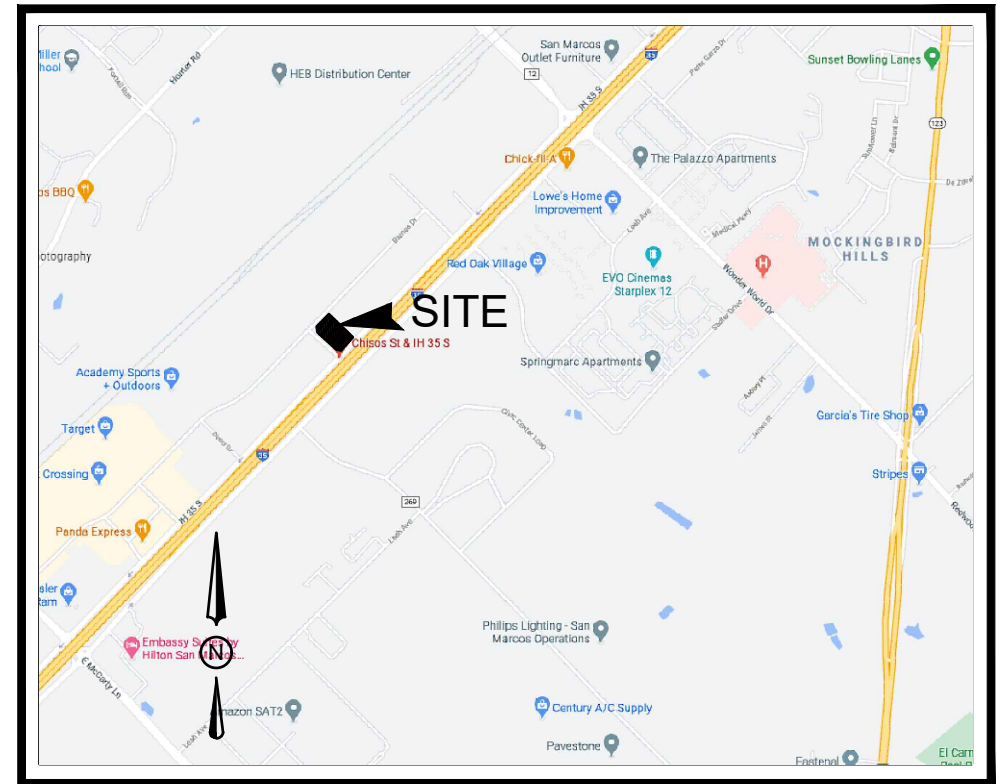
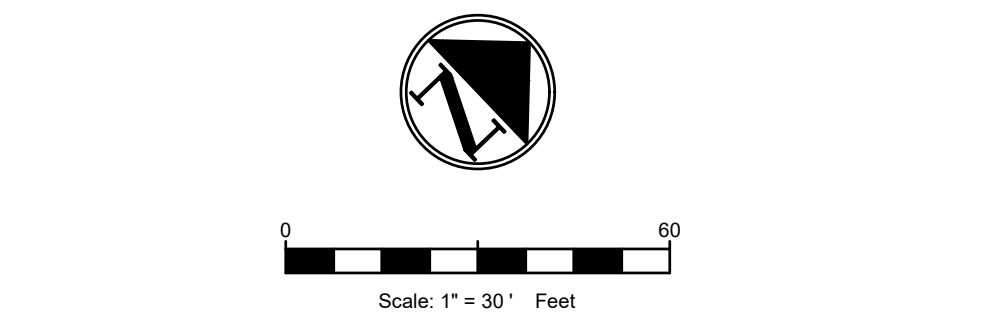


LEGEND

○	IRON PIPE FOUND	○	GAS METER
●	IRON ROD FOUND	□	TELEPHONE PEDESTAL
○	IRON ROD SET	□	CHALK PEDESTAL
×	"X" IN CONCRETE	SMH	SANITARY SEWER MANHOLE
▲	PK FOUND	SMH	STORM SEWER MANHOLE
▲	PK FOUND	STH	STORM SEWER MANHOLE
■	CONCRETE MONUMENT	○	ELECTRIC GROUND
○	CONTROL POINT	○	CONTROL POINT
○	UNDERGROUND UTILITY MARKER SIGN	○	UNDERGROUND UTILITY MARKER SIGN
○	UNDERGROUND UTILITY TEST STATION	○	UNDERGROUND UTILITY TEST STATION
○	WATER METER	○	WATER METER
○	WATER VALVE	○	WATER VALVE
○	CLEANOUT	○	CLEANOUT
○	GAS VALVE	○	GAS VALVE
○	POWER POLE	○	POWER POLE
○	DOWN GUY	○	DOWN GUY
○	ELECTRIC METER	○	ELECTRIC METER
○	LIGHT POLE	○	LIGHT POLE
○	WOOD FENCE	○	WOOD FENCE
○	CHAIN LINK FENCE	○	CHAIN LINK FENCE
○	WIRE FENCE	○	WIRE FENCE
○	METAL FENCE	○	METAL FENCE
○	P.U.E. PUBLIC UTILITY EASEMENT	○	P.U.E. PUBLIC UTILITY EASEMENT
○	D.E. DRAINAGE EASEMENT	○	D.E. DRAINAGE EASEMENT
○	B.L. BUILDING LINE	○	B.L. BUILDING LINE
○	(BRG.-DIST.) RECORD CALL	○	(BRG.-DIST.) RECORD CALL
○	GAS EXISTING GAS	○	GAS EXISTING GAS
○	EXISTING SANITARY SEWER	○	EXISTING SANITARY SEWER
○	EXISTING FIBER OPTIC	○	EXISTING FIBER OPTIC
○	EXISTING WATER	○	EXISTING WATER
○	OVERHEAD ELECTRIC LINE	○	OVERHEAD ELECTRIC LINE

STORM SEWER LEGEND

---	EXISTING MINOR CONTOURS	464
---	EXISTING MAJOR CONTOURS	465
---	MINOR CONTOURS	464
---	MAJOR CONTOURS	465
HP	HIGH POINT	HP
---	FLOW PATH	---
□	GRATE INLET	□
○	SANITARY SEWER CLEANOUT	○
○	SANITARY SEWER DOUBLE CLEANOUT	○
○	DOMESTIC WATER METER	○
○	IRRIGATION METER	○



VICINITY MAP
N.T.S.

CALCULATION OF WATER QUALITY VOLUME - Batch detention#1

REQUIRED TSS REMOVAL
 $L_m = T \times 34.0 \times A_t \times P$
 Where:

$L_m = 592$ Required TSS Removal (Pounds of TSS)
 $T = 0.8$ Water Quality Treatment Level (decimal fraction)
 $A_t = 0.66$ Impervious Cover to be Treated (acres)
 $P = 33$ Average Annual Precipitation

Calculate TSS Load Removed by SCMs
 $L_r = (SCM\ efficiency) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

$L_r = 685.91$ Load removed by SCM (pound)
 $SCM\ efficiency = 0.91$ TSS removal efficiency (decimal)
 $A_i = 0.66$ Impervious tributary area to the SCM (acres)
 $A_p = 0.26$ Pervious tributary area to the SCM (acres)
 $P = 33$ Average Annual Precipitation

$F = L_m / L_r = 0.86$

Determine WQV to Meet the TSS Requirement
 Rainfall Depth required to be captured = 1.38
 $WQV = Rainfall\ Depth \times Runoff\ Coefficient \times Area$
 $Runoff\ Coefficient = 1.72(IC)^3 - 1.97(IC)^2 + 1.23(IC) + 0.02$
 = 0.52
 $IC =$ FRACTION OF IMPERVIOUS COVER
 = 0.72
 Rainfall depth = 1.38 inch
 $WQV\ for\ DA1 = 2412.92$ cubic feet

Drainage Area	Total	Previous	Impervious
DA1	0.92	0.26	0.66

Pond 1 Storage Table

Elevation	Area	Incremental Storage	Total Storage
637	0	0	0
638	3885	1295	1295
638.3	4212	1214	2509
639	5025	3229	5738
640	5512	5266	11004

CALCULATION OF WATER QUALITY VOLUME - Batch detention#2

REQUIRED TSS REMOVAL
 $L_m = T \times 34.0 \times A_t \times P$
 Where:

$L_m = 637$ Required TSS Removal (Pounds of TSS)
 $T = 0.8$ Water Quality Treatment Level (decimal fraction)
 $A_t = 0.71$ Impervious Cover to be Treated (acres)
 $P = 33$ Average Annual Precipitation

Calculate TSS Load Removed by SCMs
 $L_r = (SCM\ efficiency) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

$L_r = 737.87$ Load removed by SCM (pound)
 $SCM\ efficiency = 0.91$ TSS removal efficiency (decimal)
 $A_i = 0.71$ Impervious tributary area to the SCM (acres)
 $A_p = 0.29$ Pervious tributary area to the SCM (acres)
 $P = 33$ Average Annual Precipitation

$F = L_m / L_r = 0.86$

Determine WQV to Meet the TSS Requirement
 Rainfall Depth required to be captured = 1.38
 $WQV = Rainfall\ Depth \times Runoff\ Coefficient \times Area$
 $Runoff\ Coefficient = 1.72(IC)^3 - 1.97(IC)^2 + 1.23(IC) + 0.02$
 = 0.52
 $IC =$ FRACTION OF IMPERVIOUS COVER
 = 0.71
 Rainfall depth = 1.38 inch
 $WQV\ for\ DA2\&3 = 2041.36$ cubic feet

Drainage Area	Total	Previous	Impervious
DA2	0.79	0.22	0.57
DA3	0.21	0.07	0.14

Pond 2 Storage Table

Elevation	Area	Incremental Storage	Total Storage
633.5	0	0	0
634	250	41.6	41.6
635	2153	1045	1087
635.4	3194	1063	2150
636	4756	3370	4457
637	6626	5665	10122

CALCULATION OF WATER QUALITY VOLUME - Batch detention#3

REQUIRED TSS REMOVAL
 $L_m = T \times 34.0 \times A_t \times P$
 Where:

$L_m = 799$ Required TSS Removal (Pounds of TSS)
 $T = 0.8$ Water Quality Treatment Level (decimal fraction)
 $A_t = 0.89$ Impervious Cover to be Treated (acres)
 $P = 33$ Average Annual Precipitation

Calculate TSS Load Removed by SCMs
 $L_r = (SCM\ efficiency) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

$L_r = 924.87$ Load removed by SCM (pound)
 $SCM\ efficiency = 0.91$ TSS removal efficiency (decimal)
 $A_i = 0.89$ Impervious tributary area to the SCM (acres)
 $A_p = 0.24$ Pervious tributary area to the SCM (acres)
 $P = 33$ Average Annual Precipitation

$F = L_m / L_r = 0.86$

Determine WQV to Meet the TSS Requirement
 Rainfall Depth required to be captured = 1.38
 $WQV = Rainfall\ Depth \times Runoff\ Coefficient \times Area$
 $Runoff\ Coefficient = 1.72(IC)^3 - 1.97(IC)^2 + 1.23(IC) + 0.02$
 = 0.61
 $IC =$ FRACTION OF IMPERVIOUS COVER
 = 0.79
 Rainfall depth = 1.38 inch
 $WQV\ for\ DA4 = 3436.37$ cubic feet

Drainage Area	Total	Previous	Impervious
DA4	1.13	0.24	0.89

Pond 3 Storage Table

Elevation	Area	Incremental Storage	Total Storage
632.83	25	0	0
633	832	56.7	56.7
633.18	2586	293	350
634	3118	2335	2685
634.24	3283	768	3453

TOTAL LM = 2081 lbs
 TOTAL TSS REMOVED BY BATCH DETENTION POND = 2348.65 lbs

Note:
 1) The site is located at San Marcos River Protection Zone
 2) Require Wq design rainfall depth = 1.25"
 3) Required Wq Treatment Level = 80%

IH 35
(300' PUBLIC R.O.W.)



NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



WATER QUALITY PLAN
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
 T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
 W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-6.2

TX. P.E. FIRM #11525

Note: When specifying/ordering grates, refer to "Choosing the Proper Inlet Grate" on pages 125-126. For a complete listing of FREE OPEN AREAS and WEIR PERIMETERS of all NEENAH grates, refer to pages 527-532.

R-1878 Series
Frame, Solid Lid/Grate

Heavy Duty

CATALOG NO.	GRID TYPE	GRID SIZE	WEIR PERIMETER	GRID WEIGHT
R-1878-01	A.C.	12" x 12"	12"	1.1
R-1878-02	A.C.	12" x 12"	12"	1.2
R-1878-03	A.C.	12" x 12"	12"	1.3
R-1878-04	A.C.	12" x 12"	12"	1.4
R-1878-05	A.C.	12" x 12"	12"	1.5
R-1878-06	A.C.	12" x 12"	12"	1.6
R-1878-07	A.C.	12" x 12"	12"	1.7
R-1878-08	A.C.	12" x 12"	12"	1.8
R-1878-09	A.C.	12" x 12"	12"	1.9
R-1878-10	A.C.	12" x 12"	12"	2.0
R-1878-11	A.C.	12" x 12"	12"	2.1
R-1878-12	A.C.	12" x 12"	12"	2.2
R-1878-13	A.C.	12" x 12"	12"	2.3
R-1878-14	A.C.	12" x 12"	12"	2.4
R-1878-15	A.C.	12" x 12"	12"	2.5
R-1878-16	A.C.	12" x 12"	12"	2.6
R-1878-17	A.C.	12" x 12"	12"	2.7
R-1878-18	A.C.	12" x 12"	12"	2.8
R-1878-19	A.C.	12" x 12"	12"	2.9
R-1878-20	A.C.	12" x 12"	12"	3.0
R-1878-21	A.C.	12" x 12"	12"	3.1
R-1878-22	A.C.	12" x 12"	12"	3.2
R-1878-23	A.C.	12" x 12"	12"	3.3
R-1878-24	A.C.	12" x 12"	12"	3.4
R-1878-25	A.C.	12" x 12"	12"	3.5
R-1878-26	A.C.	12" x 12"	12"	3.6
R-1878-27	A.C.	12" x 12"	12"	3.7
R-1878-28	A.C.	12" x 12"	12"	3.8
R-1878-29	A.C.	12" x 12"	12"	3.9
R-1878-30	A.C.	12" x 12"	12"	4.0
R-1878-31	A.C.	12" x 12"	12"	4.1
R-1878-32	A.C.	12" x 12"	12"	4.2
R-1878-33	A.C.	12" x 12"	12"	4.3
R-1878-34	A.C.	12" x 12"	12"	4.4
R-1878-35	A.C.	12" x 12"	12"	4.5
R-1878-36	A.C.	12" x 12"	12"	4.6
R-1878-37	A.C.	12" x 12"	12"	4.7
R-1878-38	A.C.	12" x 12"	12"	4.8
R-1878-39	A.C.	12" x 12"	12"	4.9
R-1878-40	A.C.	12" x 12"	12"	5.0

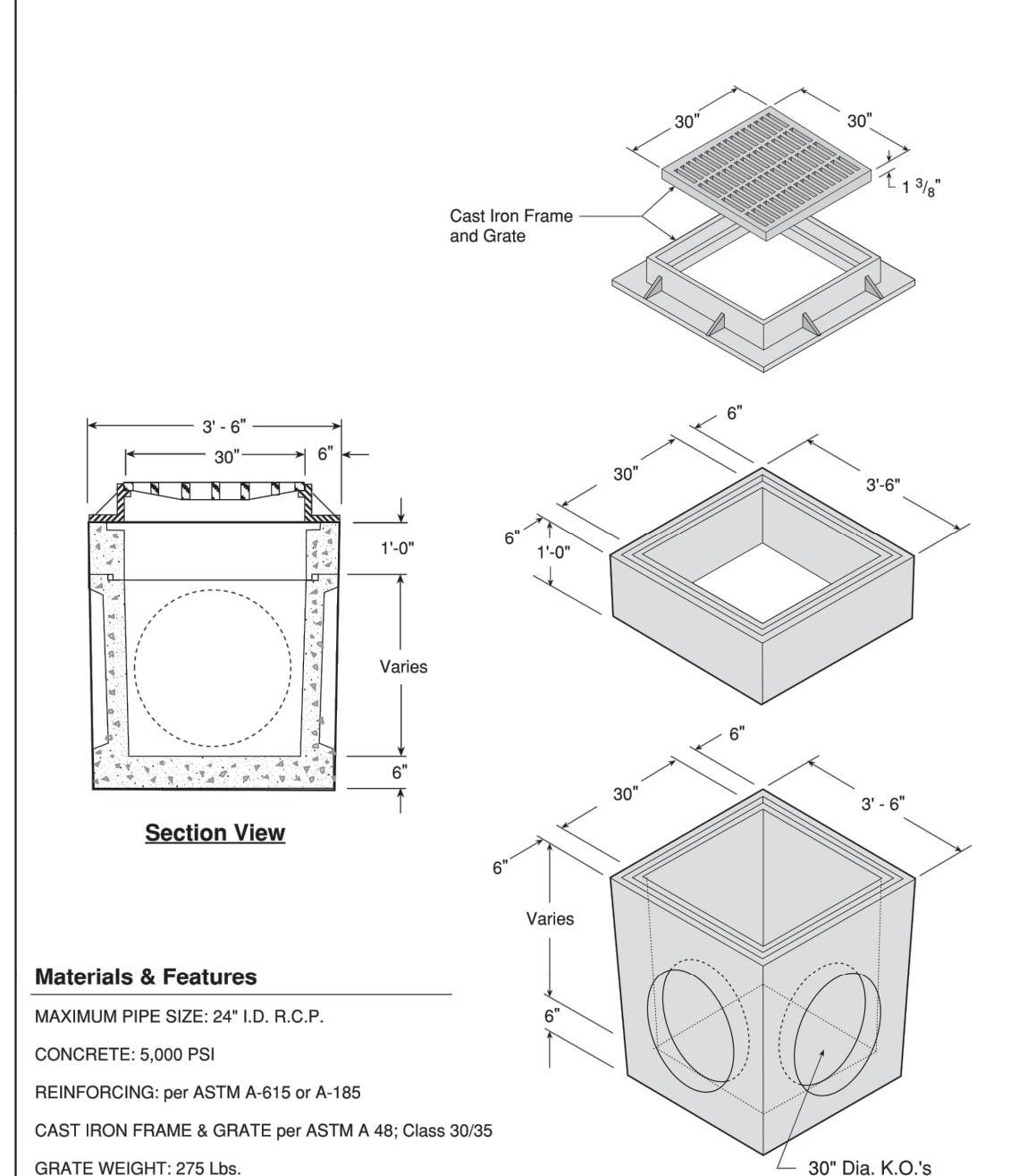
These shallow frames are suitable for use in thin or deep concrete slabs. All sizes of frames are reversible and can be installed with flange at base or top. For additional selections, see R-6672-3 Series.

Catalog No. Solid Lid		Catalog No. Open Grate		Dimensions in Inches							
A	B	C	E	F	G	H	I	J	K	L	
Square											
R-1878-A1L	R-1878-A1G	13.24	13.24	1.12	12 x 12	18 x 18	4	1 x 5 1/2	1		
R-1878-A2L	R-1878-A2G	18 x 18	18 x 18	1.12	18 x 18	22 x 22	4	1 1/4 x 4 1/4	1		
R-1878-A3L	R-1878-A3G	20 x 20	20 x 20	1.12	18 x 18	24 x 24	4	1 1/8 x 3 3/8	1		
R-1878-A4L	R-1878-A4G	21 1/2 x 21 1/2	21 1/2 x 21 1/2	1.12	20 x 20	26 x 26	4	1 3/8 x 3 3/8	1		
R-1878-A5L	R-1878-A5G	23 1/2 x 23 1/2	23 1/2 x 23 1/2	1.12	22 x 22	28 x 28	4	1 1/2 x 4 3/8	1		
R-1878-A6L	R-1878-A6G	25 3/4 x 25 3/4	25 3/4 x 25 3/4	1.12	24 x 24	30 x 30	4	2 3/8 x 2 3/8	1		
R-1878-A7L	R-1878-A7G	27 1/2 x 27 1/2	27 1/2 x 27 1/2	1.12	26 x 26	32 x 32	4	1 x 5	1		
R-1878-A8L	R-1878-A8G	29 1/2 x 29 1/2	29 1/2 x 29 1/2	1.12	28 x 28	34 x 34	4	1 1/8 x 5 1/2	1		
R-1878-A9L	R-1878-A9G	31 3/4 x 31 3/4	31 3/4 x 31 3/4	1.12	30 x 30	36 x 36	4	1 x 6 3/8	1 1/8		
R-1878-A10L	R-1878-A10G	36 x 36	36 x 36	1.12	36 x 36	42 x 42	4	1 3/4 x 3 1/2	1 1/2		
Rectangular											
R-1878-B1L	R-1878-B1G	14 x 20	14 x 20	1.12	12 x 18	18 x 24	4	3/4 x 5 1/2	1		
R-1878-B2L	R-1878-B2G	12 1/2 x 25 1/2	12 1/2 x 25 1/2	1.12	12 x 24	18 x 30	4	1 x 4 1/2	1		
R-1878-B3L	R-1878-B3G	18 1/4 x 26 1/4	18 1/4 x 26 1/4	1.12	18 x 24	24 x 30	4	1 1/4 x 4 1/4	1		
R-1878-B4L	R-1878-B4G	19 1/2 x 25 1/2	19 1/2 x 25 1/2	1.12	18 x 24	24 x 30	4	7/8 x 5	1		
R-1878-B5L	R-1878-B5G	19 3/4 x 27 3/4	19 3/4 x 27 3/4	1.12	18 x 24	24 x 30	4	2 x 5	1		
R-1878-B6L	R-1878-B6G	21 1/2 x 31 1/2	21 1/2 x 31 1/2	1.12	24 x 30	30 x 36	4	1 3/8 x 5	1		
R-1878-B7L	R-1878-B7G	25 1/2 x 37 1/2	25 1/2 x 37 1/2	1.12	24 x 30	30 x 42	4	1 1/8 x 7 1/8	3/4		
R-1878-B8L	R-1878-B8G	25 3/4 x 43 3/4	25 3/4 x 43 3/4	1.12	24 x 48	30 x 54	4	1 3/8 x 8 1/8	1		
R-1878-B9L	R-1878-B9G	31 3/4 x 37 3/4	31 3/4 x 37 3/4	1.12	30 x 36	36 x 42	4	1 3/8 x 5 5/8	1		
R-1878-B10L	R-1878-B10G	31 1/2 x 49 1/2	31 1/2 x 49 1/2	1.12	30 x 48	36 x 54	4	1 1/2 x 4 3/4	1		
R-1878-B11L	R-1878-B11G	36 x 50	36 x 50	1.12	36 x 48	42 1/2 x 55 1/2	4	1 1/8 x 7 1/8	1		

† Cover Grate is 7 pieces.
** Type D Grate available, 12" wide grate slots.
*** Type D Grate available, 30" wide grate slots.

All dimensions subject to allowable specification tolerances.

Precast Drainage Structures



Materials & Features

MAXIMUM PIPE SIZE: 24" I.D. R.C.P.
CONCRETE: 5,000 PSI
REINFORCING: per ASTM A-615 or A-185
CAST IRON FRAME & GRATE: per ASTM A 48; Class 3035
GRATE WEIGHT: 275 Lbs.
CATCH BASIN WEIGHT: 3,900 Lbs.
CATCH BASIN RISER WEIGHT: 900 Lbs.

TITLE	PLANT	STATE	SECTION/NO.	DATE	DESIGNED BY	CHECKED BY
30" x 30" Catch Basin w/ Type "A" Grated Inlet	Houston	TX	8.8	01-25-10	Hanson	HEBEL/BERG/SHRYVER/COLO

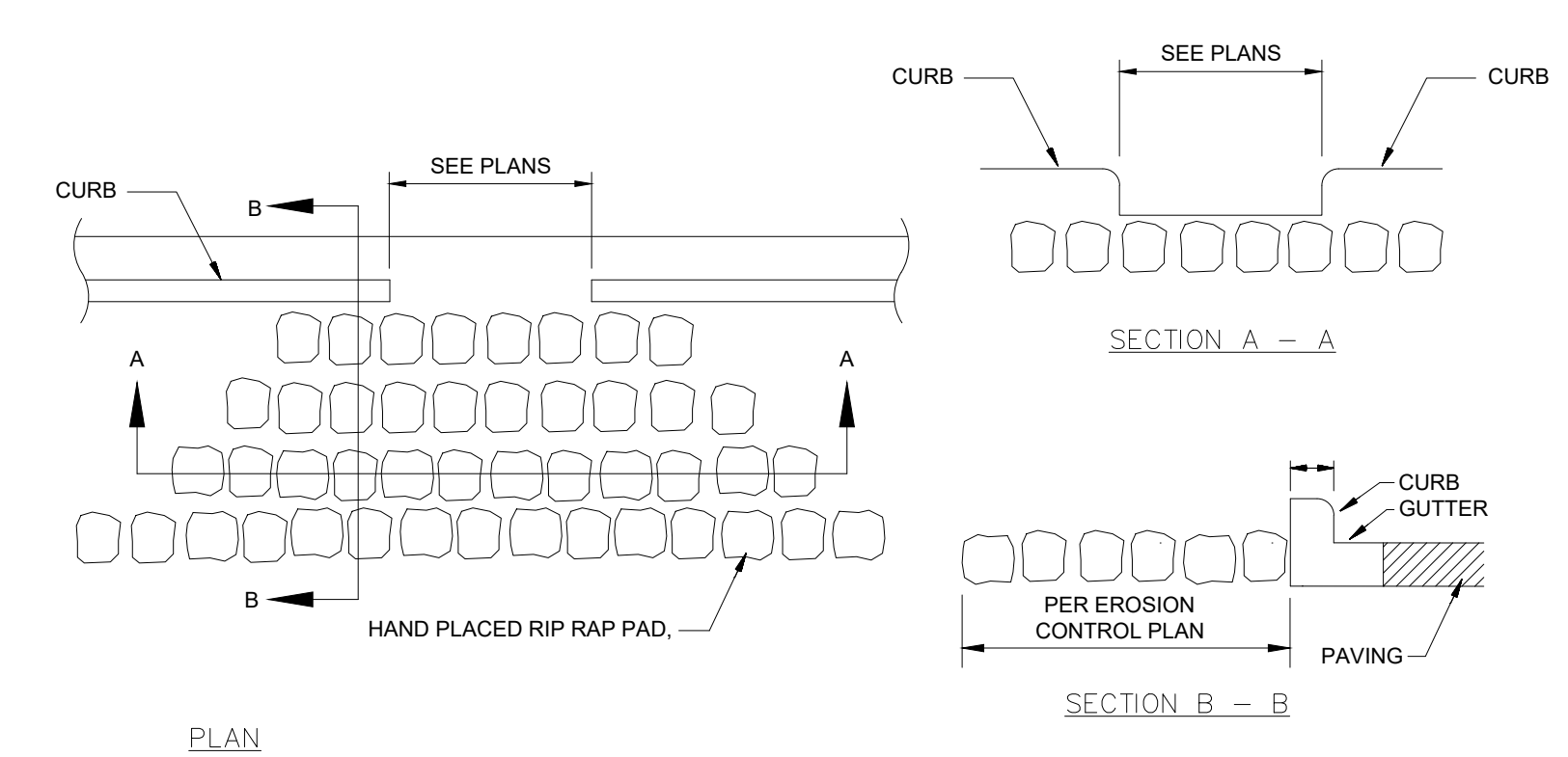
EMBEDMENT DIMENSIONS			
PIPE TYPE	SIZE	T	S
NON STORM PIPE	ALL	12"	6"-12"
STORM PIPE	42" OR LESS	12"	12"
	GREATER THAN 42"	12"	12" - 18"

EMBEDMENT			
PIPE SIZE	BEDDING SAND	MODIFIED GRADE 5 GRAVEL	ASTM C33 SIZE NO. 67
2"-3" PVC PIPE	ALLOWED	ALLOWED	ALLOWED
ALL PIPE 4" AND GREATER			ALLOWED

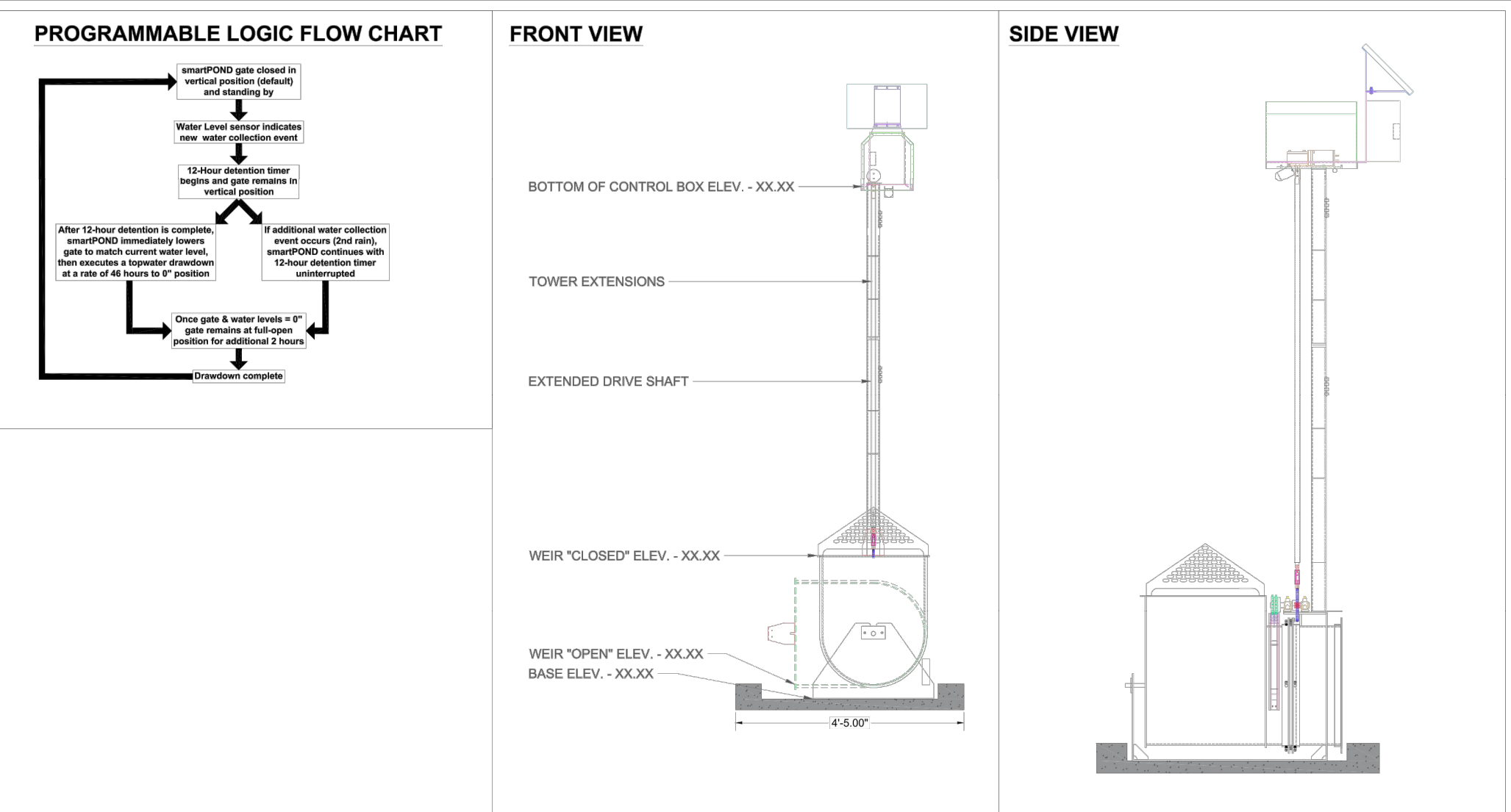
MINIMUM DEPTH OF COVER					
PIPE TYPE	SIZE	(D1) UNDER PAVEMENT	(D1) NATURAL GROUND	(D1) LESS THAN 3' OF COVER	(D2 - NOTE 2) UNDER PROPOSED ROAD
WATER	12" OR LESS	48" MIN.	36" MIN.	36" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL.	36" BELOW BASE
	16" OR GREATER	48" MIN.	48" MIN.	NOT ALLOWED	48" BELOW BASE
WASTEWATER	ALL	60" MIN.	36" MIN.	DUCTILE IRON WILL BE USED. FLOWABLE FILL DETAIL WHERE EROSION MAY OCCUR.	48" MIN. BELOW BASE
RECLAIMED WATER	ALL	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL.	36" MIN. BELOW BASE
STORM	ALL	MANUFACTURER'S SPECIFICATION MINIMUM AND MAXIMUM DEPTH OF COVER WILL BE USED FOR STORM PIPES			

NOTES:
1. ALL MEASUREMENTS ARE FROM OUTSIDE PIPE DIAMETER.
2. FOR TABLE "MINIMUM DEPTH OF COVER" COLUMN "UNDER PROPOSED ROAD" IF D1 FROM COLUMN "UNDER PAVEMENT" PLACES THE PIPE LOWER THAN D2. THEN D1 FROM "UNDER PAVEMENT" WILL BE USED FOR MINIMUM DEPTH OF COVER.
3. REFERENCE APPROPRIATE 610 PIPE TRENCH DETAILS FOR PAYMENT LIMITS. THIS DETAIL IS FOR DIMENSIONAL PURPOSES ONLY.

The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021		UTILITY TRENCH DIMENSIONS	
RECORD COPY SIGNED BY	1/23/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	5105-TD-SM	STANDARD NO.	1 OF 1
Laurie Moyer, P.E.	ADOPTED				

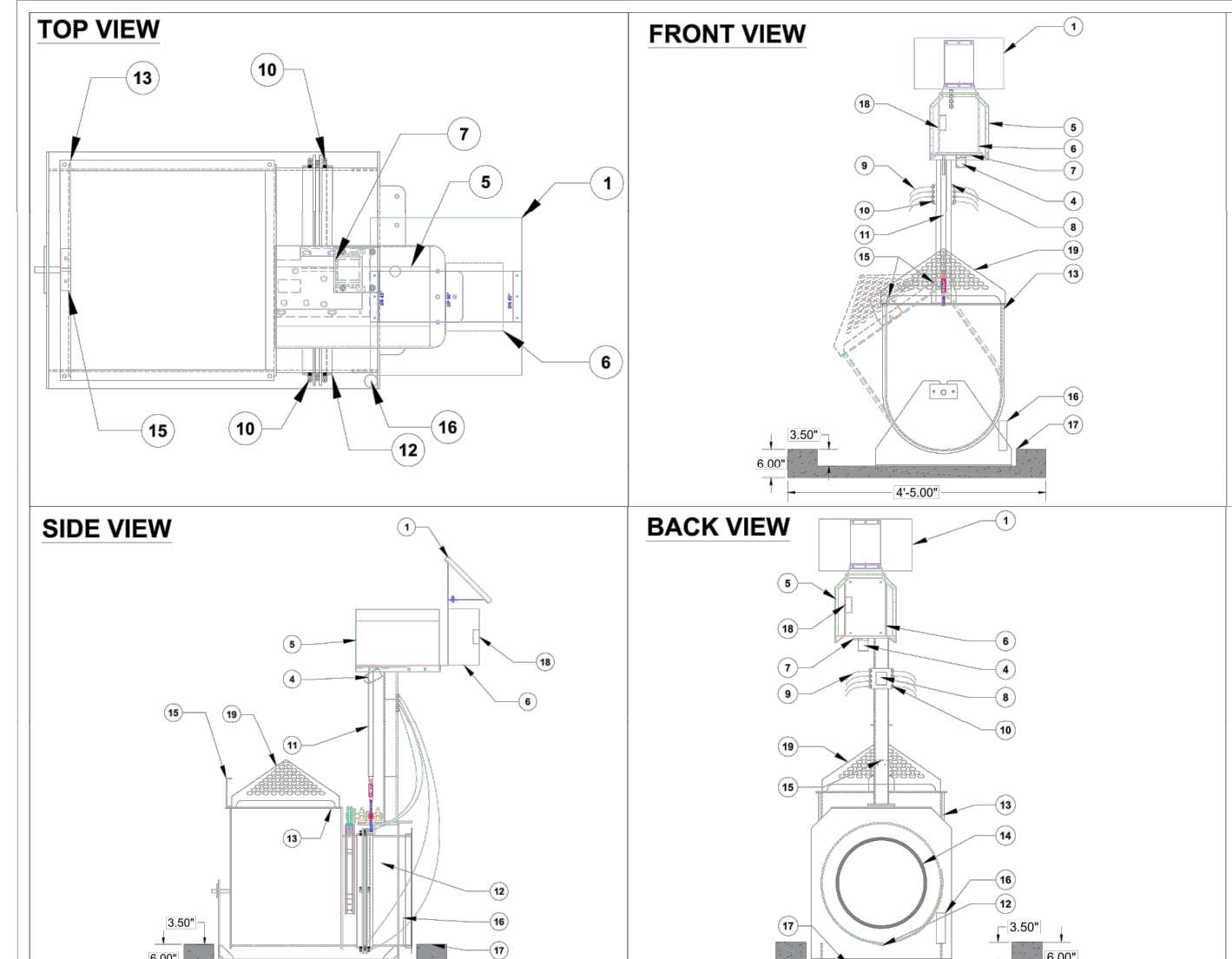


CURB CUT WITH RIP RAP



CONSTRUCTION ECO SERVICES
smartPOND Automated Stormwater Control.
CONVERGENT WATER TECHNOLOGIES

FOR ADDITIONAL INFORMATION PLEASE CONTACT: CONSTRUCTION ECO SERVICES, 832-458-1000, www.ecosvrs.com DATE OF ISSUE: 7/27/22



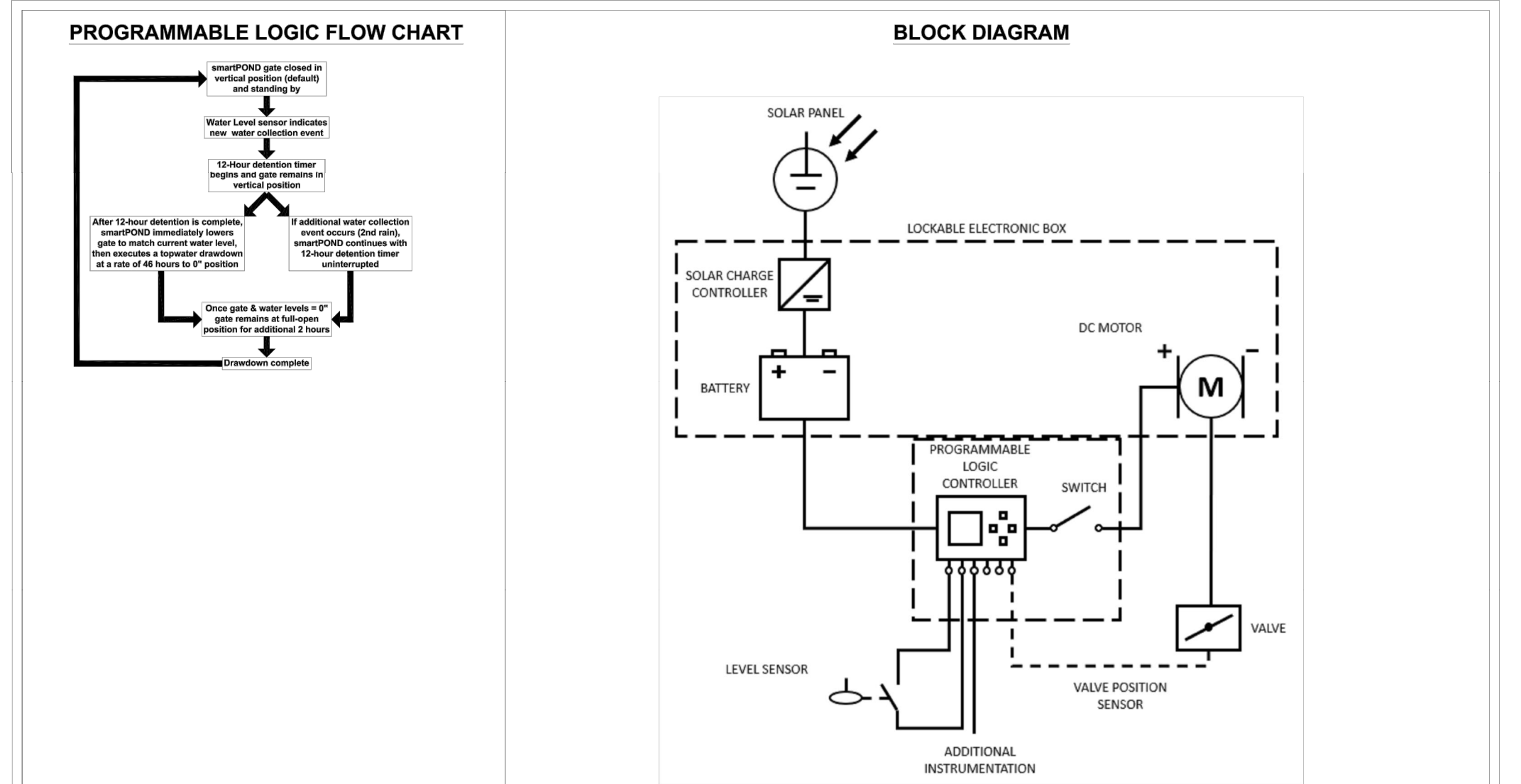
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Parts List

Item	smartPOND Components
1	12 V SOLAR PANEL WITH 20 WATT CHARGING CAPACITY
2	ANTENNA (NOT DISPLAYED)
3	CELL DATA MODEM (NOT DISPLAYED)
4	CAMERA
5	LOCKABLE WEATHERPROOF ELECTRONIC BOX
6	CONTROL BOX W/ LOCKING LATCHES
7	PIEDISTAL
8	REMOTE GREASE MANIFOLD
9	GREASE TUBES
10	GREASE FITTINGS
11	EXTENDED DRIVE SHAFT
12	24" Rotary Valve
13	24" Down (20" TALL)
14	Outlet Pipe (Size TBD By Engineer, Max 24")
15	Inclinometer
16	Level Transducer
17	6" Concrete Pad (By Others, Size Varies)
18	ON/OFF SWITCH
19	TRASH BASKET

NOTES:
FOR ABOVE GROUND APPLICATIONS, THE ENTIRE SYSTEM INCLUDING ALL NECESSARY COMPONENTS FOR OPERATION ASSEMBLE INTO ONE KIT AND ARE HOUSED UNDER A SINGLE LOCKABLE STEEL ENCLOSURE WITH THE SOLAR PANEL MOUNTED ON TOP. IN THIS CONFIGURATION, THE UNIT CAN BE INSTALLED ON A STABLE, LEVEL PAD AND BE BOLTED ONTO THE BACK OF THE OUTLET PIPE WITH SIX 1/2" BOLTS AND THEN SWITCHED TO THE "ON" POSITION.
FOR UNDERGROUND APPLICATIONS, THE VALVE IS INSTALLED IN A VAULT OR CONCRETE ENCASMENT AS NEEDED. AN EXTENDED DRIVE SHAFT CONNECTS BETWEEN THE UNDERGROUND VALVE AND THE REST OF THE COMPONENTS, INCLUDING THE MOTOR AND ALL ELECTRONICS, WHICH ARE HOUSED IN THE LOCKABLE STEEL ENCLOSURE DIRECTLY ABOVE GROUND.



CONSTRUCTION ECO SERVICES
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CONVERGENT WATER TECHNOLOGIES

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STORM SEWER DETAILS
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

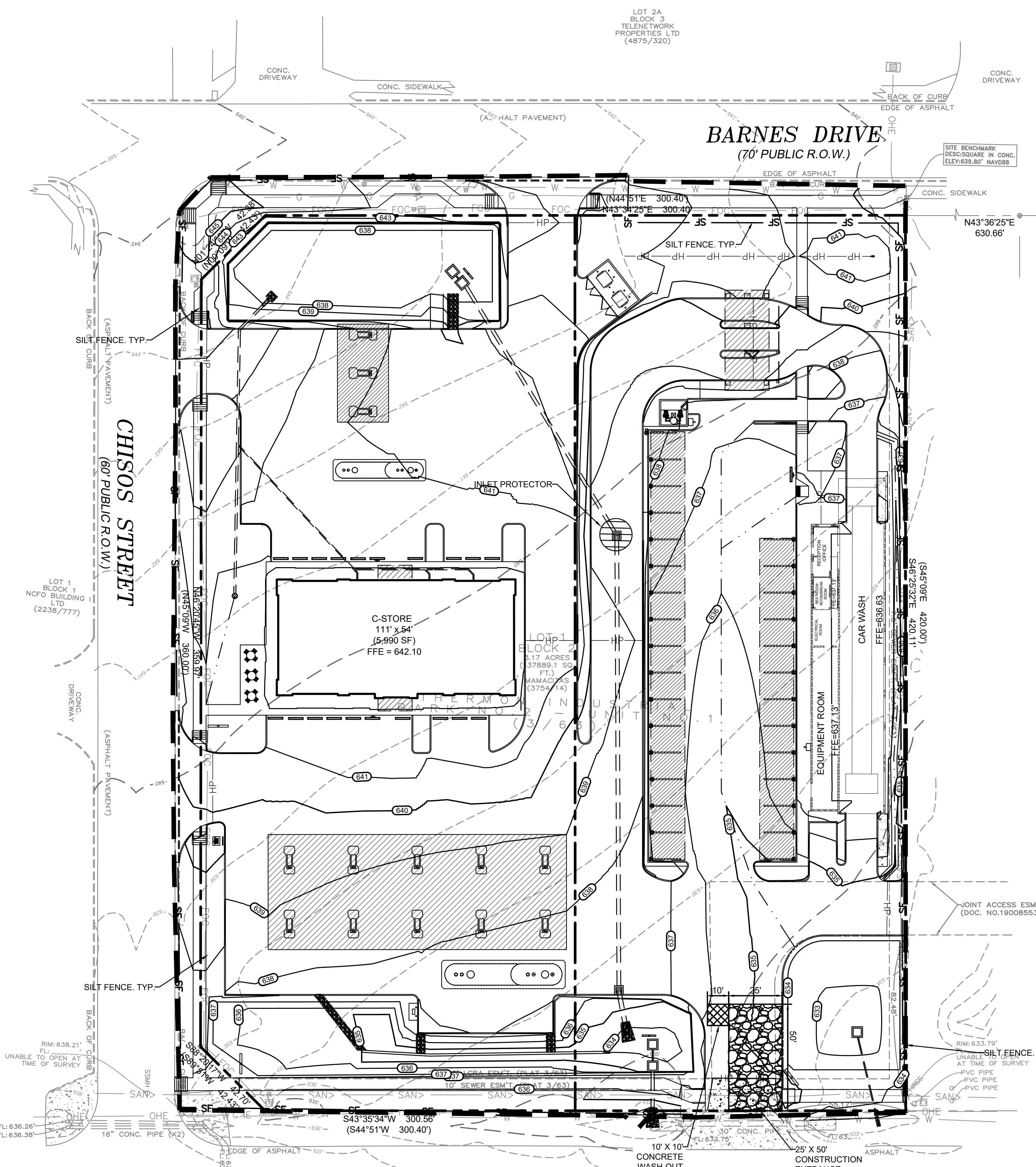
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2022	SCALE BAR	103-20	C-6.4

TX. P.E. FIRM #11525

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



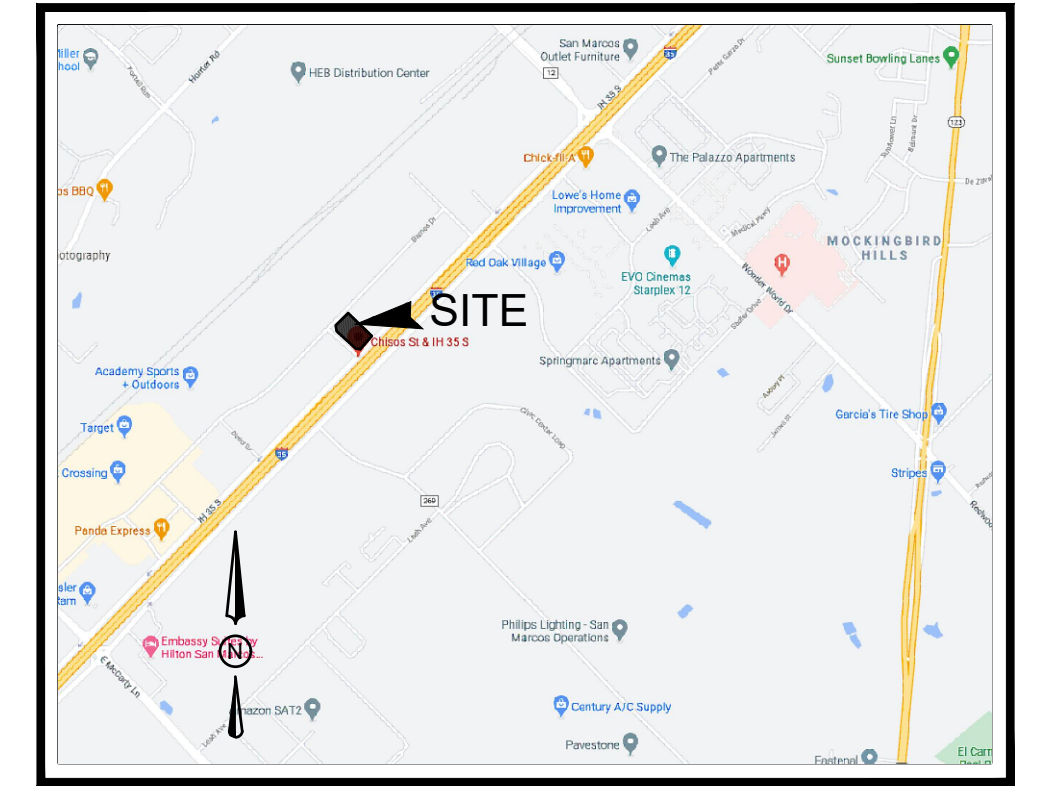


REPLAT OF LOT 2 THERMON INDUSTRIAL PARK UNIT NO. 1 (18010054)

LOT 2-A BLOCK 2 CTEC SM PROPERTY LLC (DOC. NO. 18010956)

LEGEND

○ IRON PIPE FOUND	□ GAS METER
○ IRON ROD FOUND	□ TELEPHONE PEDESTAL
○ IRON ROD SET	□ CABLE PEDESTAL
✕ IN CONCRETE	□ SANITARY SEWER MANHOLE
▲ PK FOUND	□ STORM SEWER MANHOLE
○ CALCULATED POINT	○ ELECTRIC GROUND CONTROL POINT
■ CONCRETE MONUMENT	○ UNDERGROUND UTILITY MARKER SIGN
▲ FIRE HYDRANT	○ UNDERGROUND UTILITY TEST STATION
○ WATER METER	□ SIGN POST
○ WATER VALVE	□ ELECTRIC TRANSFORMER
○ CLEANOUT	□ TRAFFIC SIGNAL BOX
○ GAS VALVE	□ PUBLIC UTILITY EASEMENT
○ POWER POLE	□ D.E. DRAINAGE EASEMENT
○ DOWN GUY	□ B.L. BUILDING LINE
□ ELECTRIC METER	□ RECORD CALL
□ LIGHT POLE	□ (BRO-DIST.) EXISTING GAS
□ WOOD FENCE	□ EXISTING SANITARY SEWER
□ CHAIN LINK FENCE	□ EXISTING FIBER OPTIC
□ WIRE FENCE	□ W EXISTING WATER
□ METAL FENCE	□ E OVERHEAD ELECTRIC LINE



EROSION CONTROL LEGEND

TEMPORARY CONSTRUCTION ENTRANCE	
TEMPORARY CONCRETE WASHOUT AREA	
RIP RAP	
TEMPORARY SILT FENCE	
HIGH POINT	
LIMITS OF DISTURBANCE	
TEMPORARY INLET PROTECTION	

EROSION & SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:
SELECT T = TEMPORARY OR P = PERMANENT (AS APPLICABLE)

- MULCHING (HAY OR STRAW)
- BUFFER ZONES
- PLANTING
- SEEDING
- SODDING
- PRESERVATION OF NATURAL RESOURCES
- FLEXIBLE CHANNEL LINER
- RIGID CHANNEL LINER
- SOIL RETENTION BLANKET
- COMPOST MANUFACTURED TOPSOIL
- EROSION CONTROL BLANKET

EROSION CONTROL SUMMARY

PROJECT DESCRIPTION: SITE GRADING, CONSTRUCTION OF PARKING LOT, UNDERGROUND AND ABOVE GROUND UTILITIES & CONSTRUCTION OF PROPOSED BUILDING.

SEQUENCE OF ACTIVITIES: THE CONTRACTOR WILL SCHEDULE THE PROJECT IN A SERIES OF PHASES. IN GENERAL, THE SEQUENCE OF THESE PHASES WILL CONSIST OF:

1. INSTALL EROSION CONTROL BMP'S.
2. BEGIN EARTHWORK.
3. INSTALL WET AND DRY UTILITIES.
4. INSTALL STORM SEWER LINES AND INLETS.
5. BEGIN SITE GRADING.
6. INSTALL CURBS, DRIVEWAY AND PARKING LOT.
7. POUR BUILDING FOUNDATION PAD.
8. BEGIN VERTICAL BUILDING CONSTRUCTION.
9. INSTALL TREES, SHRUBS, ETC. AND RESTORE ALL DISTURBED VEGETATION.
10. REMOVAL OF EXISTING EROSION CONTROL BMP'S & INSTALLATION OF PERMANENT EROSION CONTROL BMP'S.

SOIL DISTURBING ACTIVITIES: SOIL DISTURBING ACTIVITIES WILL INCLUDE CLEARING & GRUBBING, GRADING, TRENCHING IN PREPARATION FOR INSTALLING UTILITIES, BUILDING PAD, PARKING LOT, EROSION & SEDIMENTATION CONTROLS AND TOPSOIL WORK FOR FINAL PLANTING AND SEEDING.

TOTAL PROJECT AREA: 3.17 ACRES
TOTAL DISTURBED AREA: 3.45 ACRES

- EROSION CONTROL GENERAL NOTES**
1. EVERY SOIL DISTURBING ACTIVITY SHALL HAVE AN ACCOMPANYING EROSION CONTROL PLAN.
 2. THE STORM WATER POLLUTION PREVENTION PLAN (SWPP3) SHALL BE READILY AVAILABLE FOR REVIEW BY FEDERAL, STATE, OR LOCAL OFFICIALS.
 3. NO SOIL DISTURBING ACTIVITIES WILL OCCUR PRIOR TO THE SWPP3 AND ASSOCIATED BEST MANAGEMENT PRACTICES (BMP) BEING FULLY IMPLEMENTED AND THEN INSPECTED.
 4. THE CONTRACTOR SHALL COMPLY WITH THE CITY'S STORM WATER ORDINANCE, THE TPDES GENERAL CONSTRUCTION PERMIT TXR150000 AND ANY OTHER STATE AND/OR LOCAL REGULATIONS.
 5. THE SITE SHALL BE INSPECTED BY THE CONTRACTOR OR HIS REPRESENTATIVE WEEKLY, AND AFTER ANY MAJOR STORM. ADJUSTMENTS/REPAIRS TO THE EROSION CONTROL MEASURES SHOULD BE MADE AS NEEDED.
 6. CONTRACTOR SHALL VEGETATE ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF GRADING ACTIVITIES. FINAL ACCEPTANCE OF A SITE SHALL BE CONTINGENT UPON VEGETATION BEING ESTABLISHED IN ALL DISTURBED AREAS.
 7. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT SIGNIFICANT EROSION OCCURS AS A RESULT OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE ERODED AREA TO ORIGINAL CONDITION OR BETTER.
 8. TEMPORARY STONE STABILIZED CONSTRUCTION ENTRANCE SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS: 24" WIDE X 50' LONG X 6" DEEP. (3"-5" COURSE AGGREGATE). PLACE FILTER FABRIC UNDER STONE.
 9. THE CONCRETE WASHOUT AREA IS TO BE USED AS A VEHICLE WASH DOWN AREA FOR DEBRIS AND SOIL REMOVAL PRIOR TO EXITING THE SITE.

CITY EROSION CONTROL NOTES

1. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MUST BE DEVELOPED/AMENDED AND STAMPED BY A TX PE, CPESC, OR QPSWPPP (CITY CODE SECTION 86.529(B)(2) OR 86.529(C)(3)). AVAILABLE (HARD-COPY, INCLUDING A FULL-SIZE SITE MAP) AT THE PRE-CON MEETING.
2. BEFORE ANY DIRT WORK STARTS, ALL EROSION AND SEDIMENTATION CONTROLS (EGCS), AND TREE PROTECTION IF APPLICABLE, MUST BE INSTALLED PER COSM STANDARD DETAILS AND THEIR INSTALLATION APPROVED BY A CITY ENVIRONMENTAL INSPECTOR AT AN ONSITE PRE-CON MEETING. CALL THE PERMIT CENTER AT 512-805-2830 TO SCHEDULE. (TXR150000 PART III.G.1. AND CITY CODE SECTION 86.529(A)(1)).
3. CONTRACTOR MUST HAVE A CISEC, OR QCS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT PER TXR150000 PART III.F.7 AND CITY ODE SECTIONS 86.523 AND 86.529(B)(9) OR 86.529(C)(10). CONTRACTOR MUST MAINTAIN ALL ESC MEASURES, ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS AND DOCUMENT PER TXR150000 PART III.F.6-7 AND CITY CODE SECTION 86.529(C)(11).
4. PER TXR150000 PART III.F.1.(M), LOCATIONS OF THE FOLLOWING, AS APPLICABLE, MUST BE MARKED ON THIS SHEET IN THE FIELD: THE TPDES CONSTRUCTION SITE NOTICE POSTING IN PUBLIC VIEW, STAGING, SPOILS STORAGE, CONCRETE WASHOUT, DUMPSTERS, PORTABLE TOILET(S), FUELING POINT(S), AND/OR OTHER POTENTIAL CONTAMINANT SOURCES. THIS SHEET MUST ALSO BE UPDATED AS THESE POTENTIAL CONTAMINANT SOURCES ARE MOVED OR OTHER CHANGES OCCUR ONSITE. DATE AND INITIAL ALL PEN AND INK CHANGES.
5. IF THERE IS A BREAK OF MORE THAN 14 DAYS DURING THE PROJECT WHERE NO DIRT WORK IS DONE ON A SITE PORTION(S) WITHIN THE LOC. TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER TXR150000 PART III.F.2.(B) III CITY CODE SECTION 86.529(A)(1)(G). SUCH DIRT WORK STOPPAGE INCLUDES TIME PERIODS BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START, BETWEEN CONSTRUCTION START AND FINAL GRADING, BETWEEN CONSTRUCTION AND FINAL STABILIZATION, ETC. USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.
6. CONCRETE WASTE, CONCRETE WASH WATER, AND MASONRY/STUCCO/PAINT MIXING AND WASH WATER, AS APPLICABLE, MUST BE CONTAINED IN SUFFICIENT PRE-MADE STRUCTURE(S), LINED STRUCTURE(S), OR LINED PIT(S) PER TXR150000 PART V.D.
7. PAVEMENT, STONE, ROCK, RIPRAP, SOD, OR ANOTHER TYPE OF FLOW DISSIPATION IS REQUIRED AT ALL CURB CUTS AND OTHER DISCHARGE POINTS, SURROUNDING ALL GRATE INLETS, AND UNDER ALL OPEN DOWNSPOUTS, RAIN CHAINS, ROOF DRAINS/LARGE DOWNSPOUT NOZZLES(AKA COW TONGUES), ETC. DECOMPOSED GRANITE, PEA GRAVEL OR SMALLER, RUBBER OR LANDSCAPE MULCH, PINE BARK, PECAN SHELLS, WOOD CHIPS, AND ANY OTHER MATERIAL THAT IS EASILY DISPLACED DURING RAIN EVENTS ARE NOT ALLOWED IN THESE LOCATIONS.
8. POND OR OTHER DISTURBED SLOPES 3H:1V OR FLATTER MUST BE PERMANENTLY STABILIZED WITH SEED AND BIODEGRADABLE SOIL RETENTION BLANKETS WITH NO PLASTIC NETTING. DISTURBED SLOPES EXCEEDING 3H:1V REQUIRE SEED AND TYPE C OR D BLANKETS (OR EQUIVALENT CONTROL) UNTIL REVEGETATION IS ESTABLISHED. OR SOD. (COSM 1/1/2020 MODIFICATIONS TO THE COA AND TXDOT STANDARD SPECIFICATIONS, COSM SPECIFICATION 605S).
9. CITY CODE SECTION 14.026, §3305.2 CONSTRUCTION DEBRIS / TRASH CONTAINMENT. CONTRACTORS SHALL ENSURE THAT EVERY CONSTRUCTION, REMODEL, REPAIR, OR RENOVATION SITE HAS A METHOD OF CONTAINMENT FOR CONSTRUCTION DEBRIS AND TRASH. THE CONTRACTOR SHALL ENSURE THAT CONSTRUCTION DEBRIS AND TRASH ARE REMOVED FROM THE SITE ON A REGULAR BASIS, SO THAT THE SITE IS MAINTAINED IN A CLEAN, SANITARY, AND SAFE CONDITION AT ALL TIMES.
10. CITY CODE SECTION 14.026, §3305.4 STREET CLEANING. ADJACENT STREETS TO THE CONSTRUCTION SITE SHALL BE MAINTAINED AND FREE OF DIRT, MUD, ROCKS AND OTHER CONSTRUCTION DEBRIS AT ALL TIMES. DIRT, GRAVEL, ETC., SHALL NOT BE SWEEP, WASHED, OR OTHERWISE DEPOSITED INTO UNPROTECTED STORM WATER CONVEYANCE SYSTEMS.
11. CITY CODE SECTION 14.026, §3305.5 SPOILS PILES. ALL SPOILS PILES SHALL BE UTILIZED ON SITE OR REMOVED FROM CONSTRUCTION SITES AS SOON AS POSSIBLE. WHILE ONSITE, ALL PILES MUST BE MINIMIZED IN HEIGHT, VOLUME AND FOOTPRINT, AND IN NO CASE SHALL PILES EXCEED EIGHT FEET IN HEIGHT. SEEDING OR COVERING OF UNDISTURBED PORTIONS OF SPOILS PILES IS REQUIRED IF THE PILES WILL NOT BE INCREASED OR DECREASED FOR MORE THAN 14 CALENDAR DAYS, AS SPECIFIED IN THE TPDES CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN REGULATIONS, REGARDLESS OF THE SIZE OF THE SITE AND/OR PILE. IN NO CASE SHALL SITE FINAL AND/OR BUILDING FINAL INSPECTIONS BE APPROVED UNTIL ALL SPOILS PILES HAVE BEEN REMOVED FROM CONSTRUCTION SITES.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



EROSION CONTROL PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

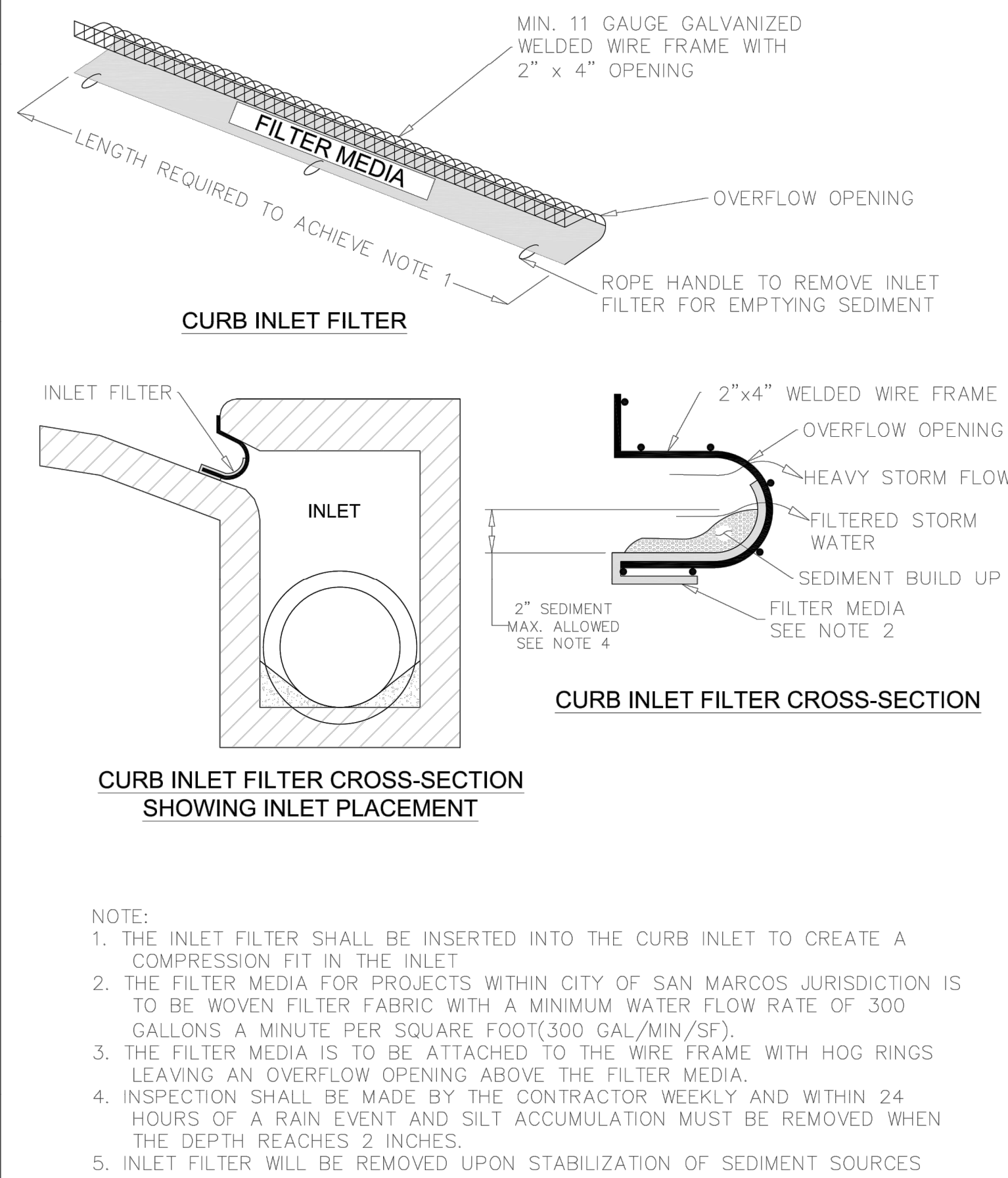
TRIANGLE ENGINEERING LLC
T: 469.331.8560 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

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P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-7.0

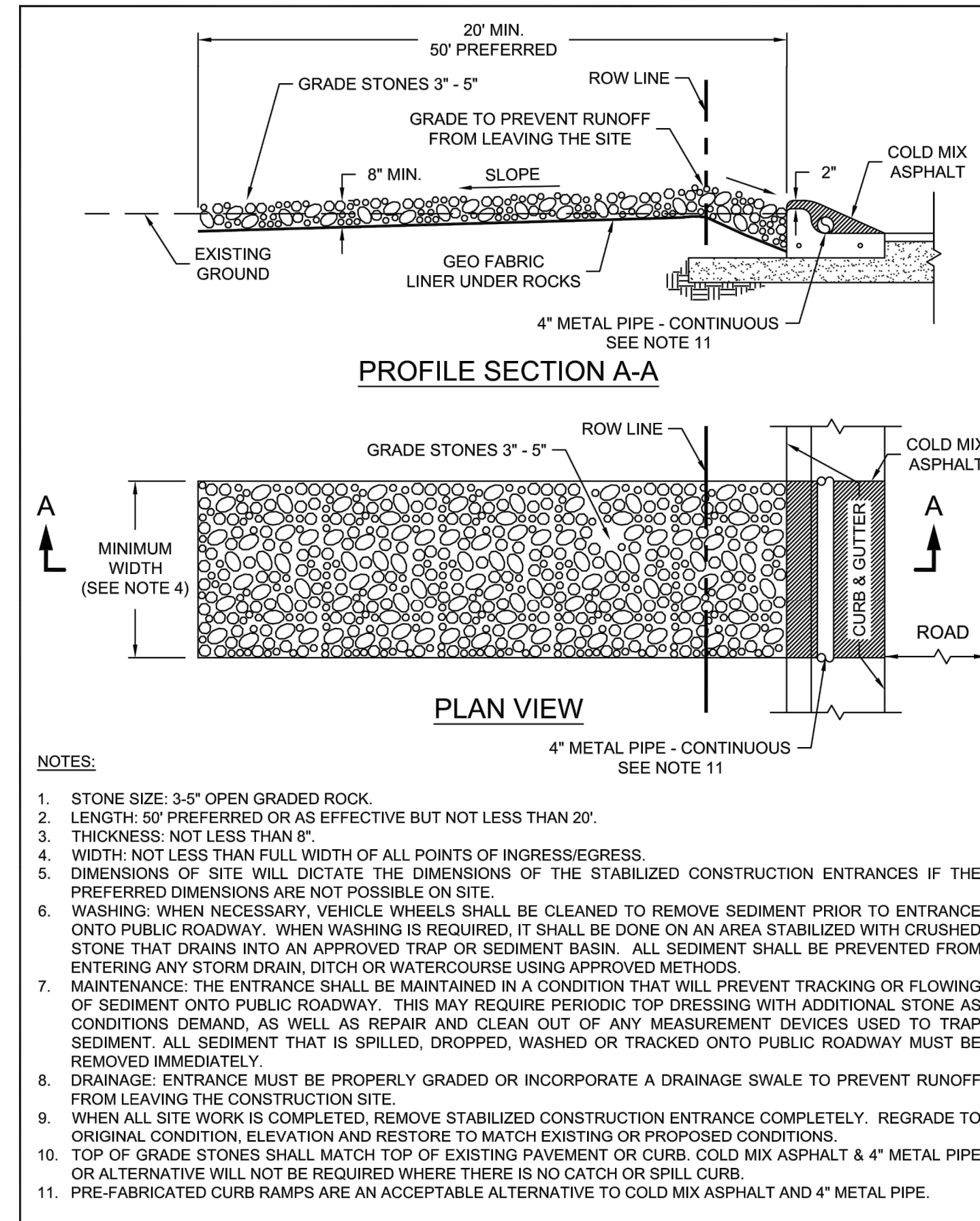
TX. P.E. FIRM #11525





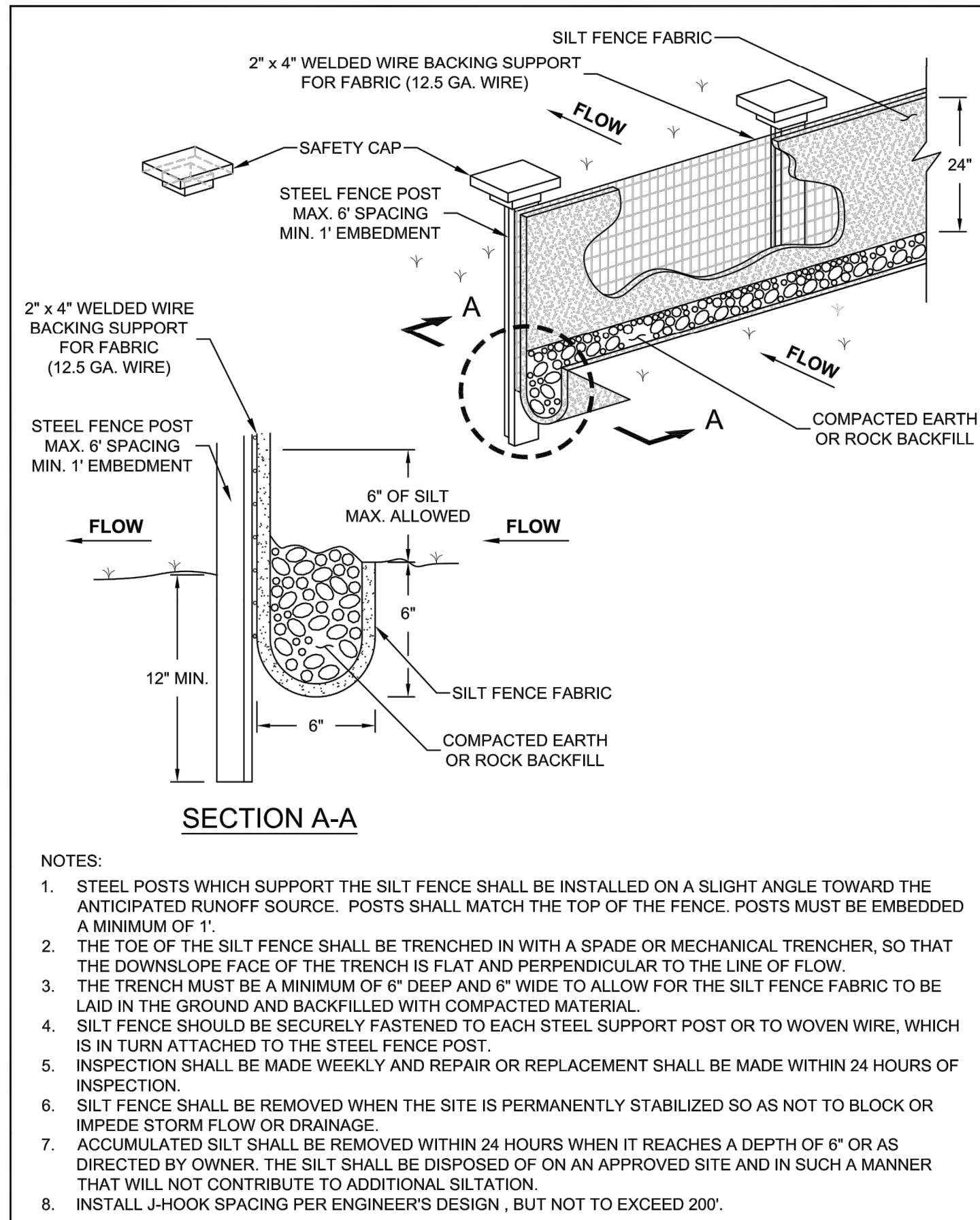
- NOTE:
1. THE INLET FILTER SHALL BE INSERTED INTO THE CURB INLET TO CREATE A COMPRESSION FIT IN THE INLET.
 2. THE FILTER MEDIA FOR PROJECTS WITHIN CITY OF SAN MARCOS JURISDICTION IS TO BE WOVEN FILTER FABRIC WITH A MINIMUM WATER FLOW RATE OF 300 GALLONS A MINUTE PER SQUARE FOOT (300 GAL/MIN/SF).
 3. THE FILTER MEDIA IS TO BE ATTACHED TO THE WIRE FRAME WITH HOG RINGS LEAVING AN OVERFLOW OPENING ABOVE THE FILTER MEDIA.
 4. INSPECTION SHALL BE MADE BY THE CONTRACTOR WEEKLY AND WITHIN 24 HOURS OF A RAIN EVENT AND SILT ACCUMULATION MUST BE REMOVED WHEN THE DEPTH REACHES 2 INCHES.
 5. INLET FILTER WILL BE REMOVED UPON STABILIZATION OF SEDIMENT SOURCES.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CURB INLET PROTECTION	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	2-15-2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	628S-1-SM N.T.S. STANDARD DETAIL



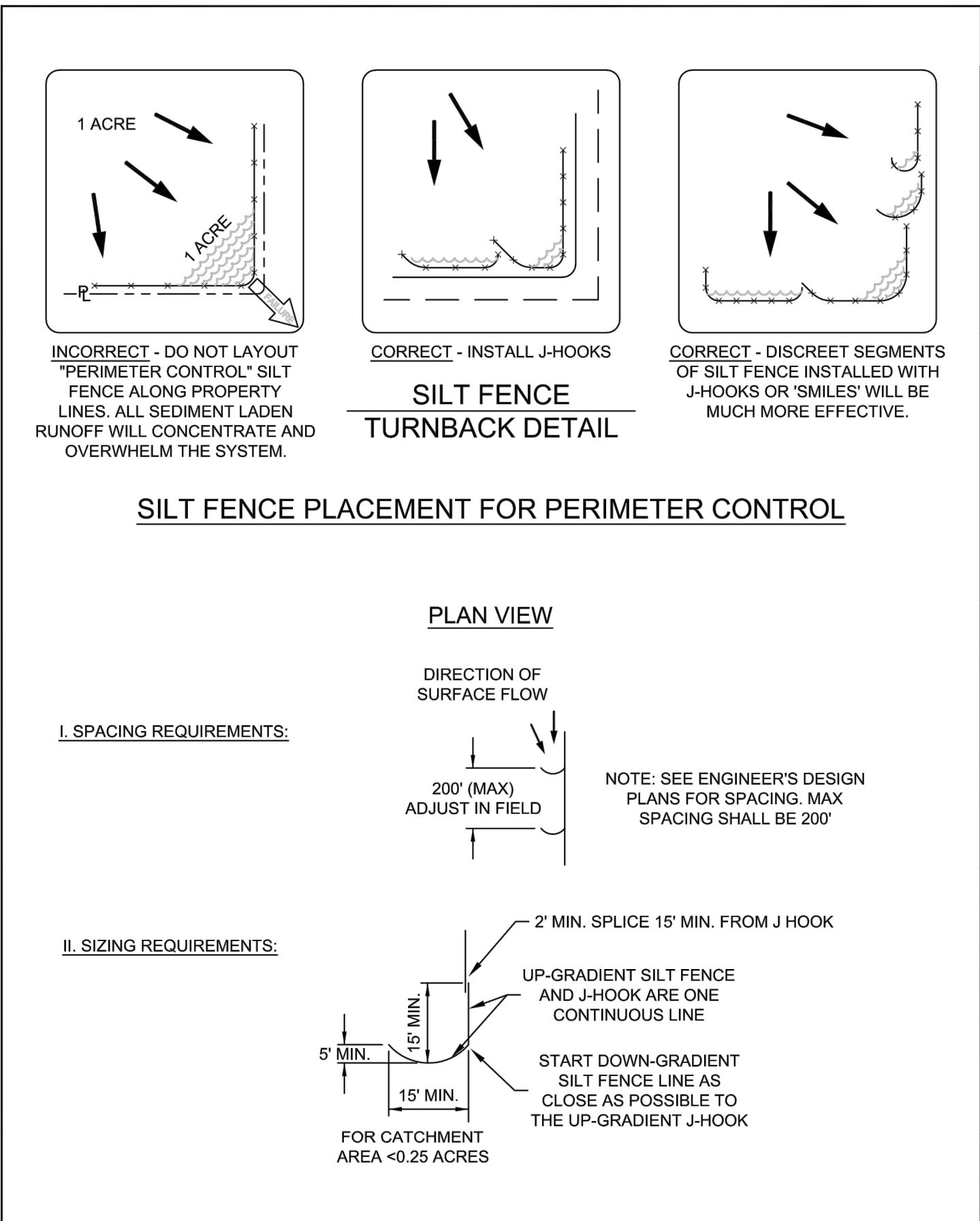
- NOTES:
1. STONE SIZE: 3-5" OPEN GRADED ROCK.
 2. LENGTH: 50' PREFERRED OR AS EFFECTIVE BUT NOT LESS THAN 20'.
 3. THICKNESS: NOT LESS THAN 8".
 4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
 5. DIMENSIONS OF SITE WILL DICTATE THE DIMENSIONS OF THE STABILIZED CONSTRUCTION ENTRANCES IF THE PREFERRED DIMENSIONS ARE NOT POSSIBLE ON SITE.
 6. WASHING: WHEN NECESSARY, VEHICLE 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 THAT DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
 7. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASUREMENT DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENT THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
 8. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
 9. WHEN ALL SITE WORK IS COMPLETED, REMOVE STABILIZED CONSTRUCTION ENTRANCE COMPLETELY. REGRADE TO ORIGINAL CONDITION. ELEVATION AND RESTORE TO MATCH EXISTING OR PROPOSED CONDITIONS.
 10. TOP OF GRADE STONES SHALL MATCH TOP OF EXISTING PAVEMENT OR CURB. COLD MIX ASPHALT & 4" METAL PIPE OR ALTERNATIVE WILL NOT BE REQUIRED WHERE THERE IS NO CATCH OR SPILL CURB.
 11. PRE-FABRICATED CURB RAMPS ARE AN ACCEPTABLE ALTERNATIVE TO COLD MIX ASPHALT AND 4" METAL PIPE.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STABILIZED CONSTRUCTION ENTRANCE	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	641S-1-SM 1 OF 1

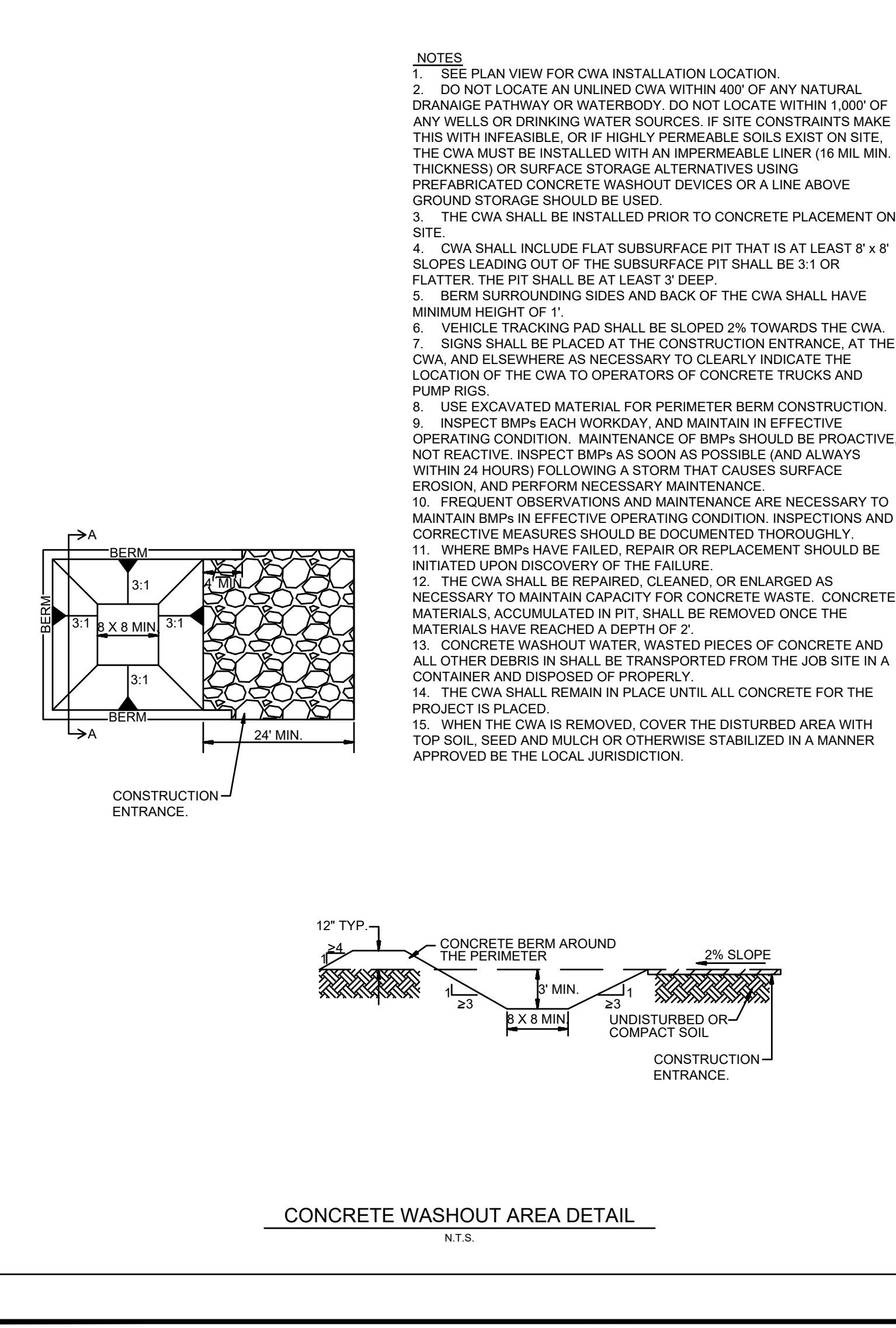


- NOTES:
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS SHALL MATCH THE TOP OF THE FENCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1'.
 2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
 3. THE TRENCH MUST BE A MINIMUM OF 6" DEEP AND 6" WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
 4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
 5. INSPECTION SHALL BE MADE WEEKLY AND REPAIR OR REPLACEMENT SHALL BE MADE WITHIN 24 HOURS OF INSPECTION.
 6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS PERMANENTLY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
 7. ACCUMULATED SILT SHALL BE REMOVED WITHIN 24 HOURS WHEN IT REACHES A DEPTH OF 6" OR AS DIRECTED BY OWNER. THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
 8. INSTALL J-HOOK SPACING PER ENGINEER'S DESIGN, BUT NOT TO EXCEED 200'.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SILT FENCE	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	642S-1-SM 1 OF 2

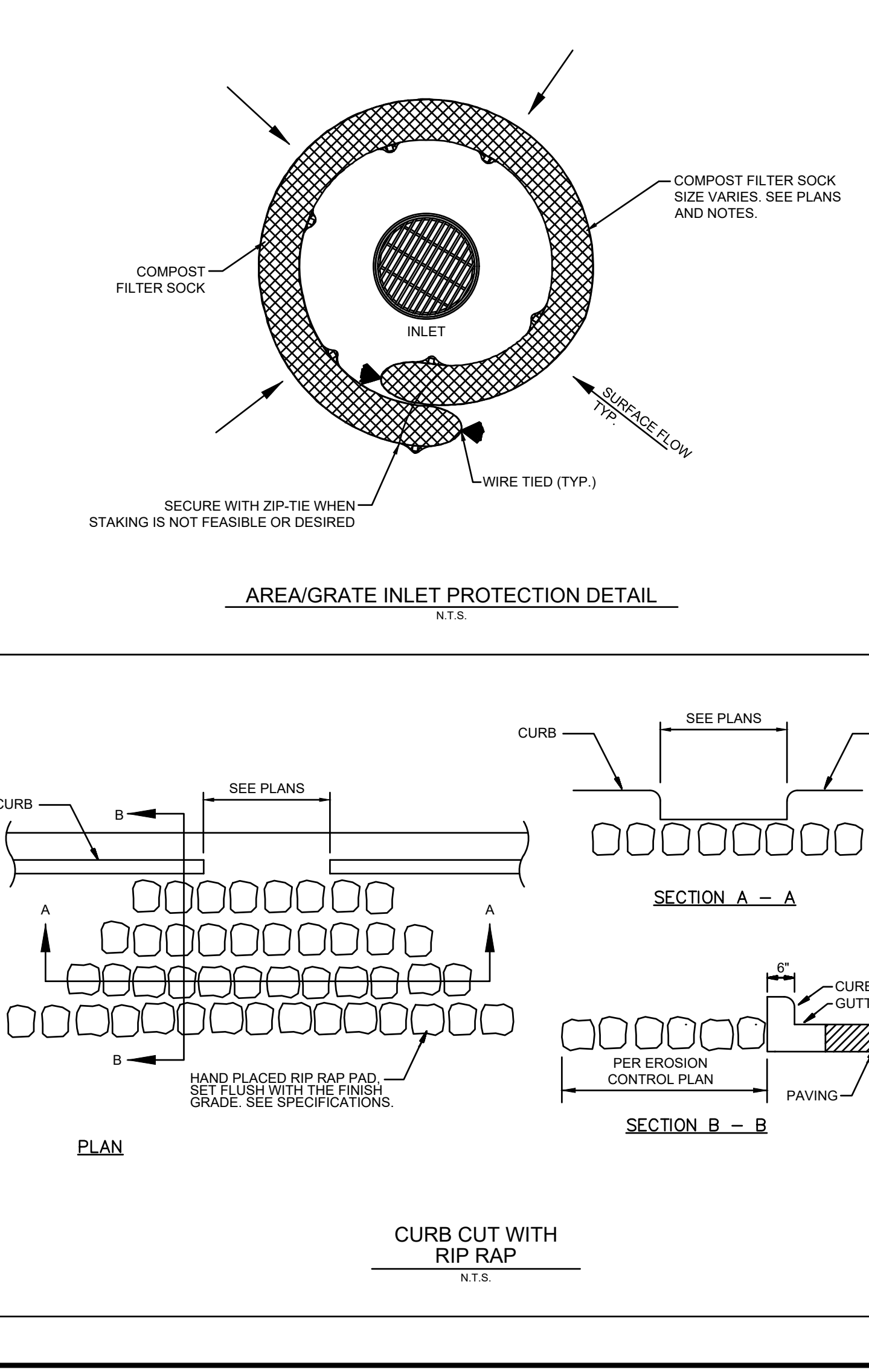


The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SILT FENCE	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	642S-1-SM 2 OF 2



- NOTES:
1. SEE PLAN VIEW FOR CWA INSTALLATION LOCATION.
 2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS WITH INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINE ABOVE GROUND STORAGE SHOULD BE USED.
 3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
 4. CWA SHALL INCLUDE FLAT SUBSURFACE PIT THAT IS AT LEAST 8' x 8' FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
 5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
 6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
 7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
 8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.
 9. INSPECT BMPs EACH WORKDAY, AND MAINTAIN IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 10. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 11. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 12. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
 13. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN SHALL BE TRANSPORTED FROM THE JOB SITE IN A CONTAINER AND DISPOSED OF PROPERLY.
 14. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
 15. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CONCRETE WASHOUT AREA DETAIL	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	642S-1-SM 1 OF 1



- NOTES:
1. COMPOST FILTER SOCK SIZE VARIES. SEE PLANS AND NOTES.
 2. WIRE TIED (TYP.) SHALL BE USED TO SECURE THE COMPOST FILTER SOCK TO THE CURB CUT.
 3. RIP RAP SHALL BE HAND PLACED AND SET FLUSH WITH THE FINISH GRADE.
 4. PER EROSION CONTROL PLAN, PAVING SHALL BE INSTALLED ON THE CURB CUT.
 5. CURB GUTTER SHALL BE INSTALLED ON THE CURB CUT.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CURB CUT WITH RIP RAP	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	642S-1-SM 1 OF 1

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



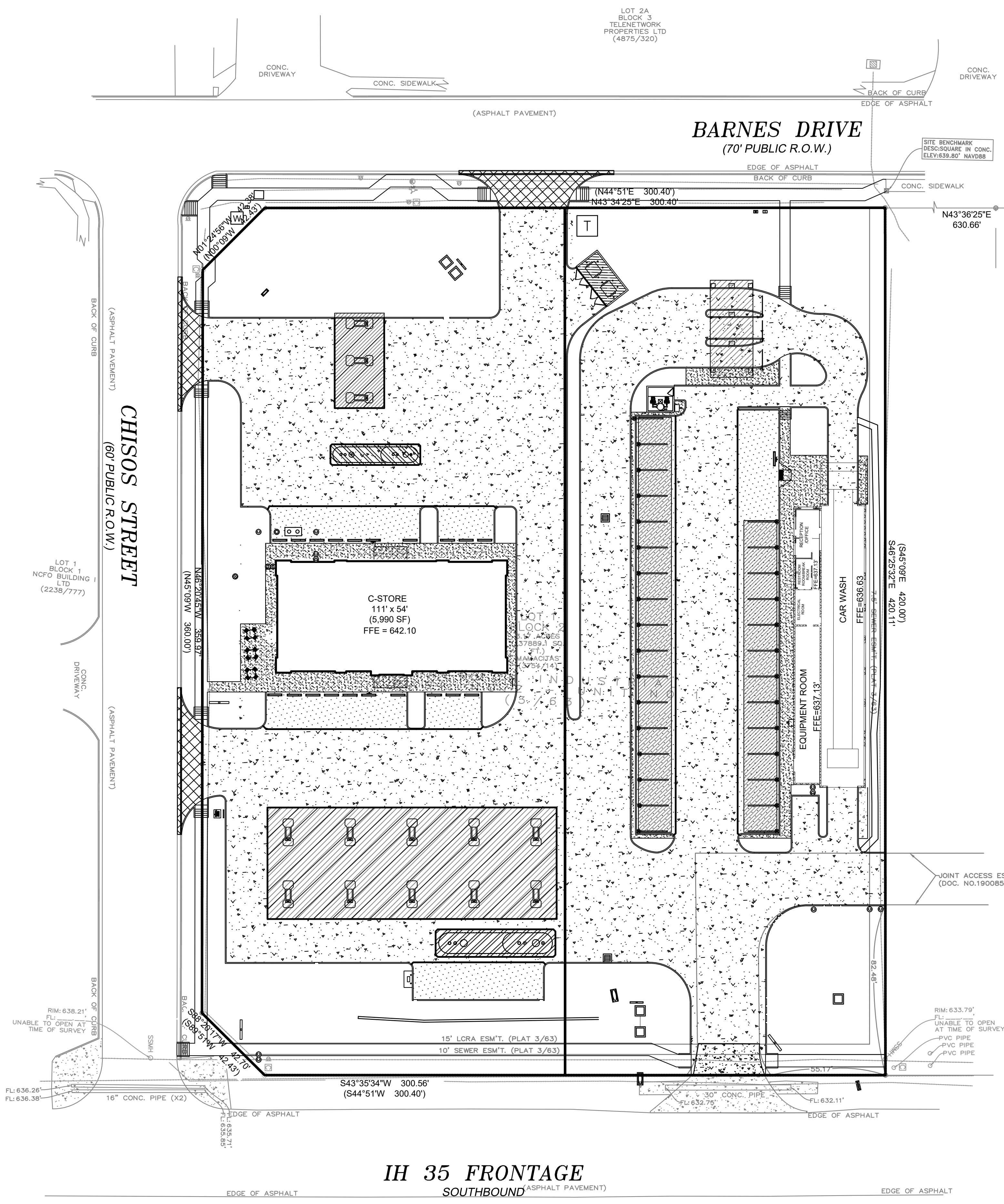
EROSION CONTROL DETAILS
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

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 W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SCALE BAR	103-20	C-7.1

TX. P.E. FIRM #11525



LOT 2A
BLOCK 3
TELENETWORK
PROPERTIES LTD
(4875/320)

BARNES DRIVE
(70' PUBLIC R.O.W.)

CHISOS STREET
(60' PUBLIC R.O.W.)

IH 35 FRONTAGE
SOUTHBOUND (ASPHALT PAVEMENT)

IH 35
(300' PUBLIC R.O.W.)

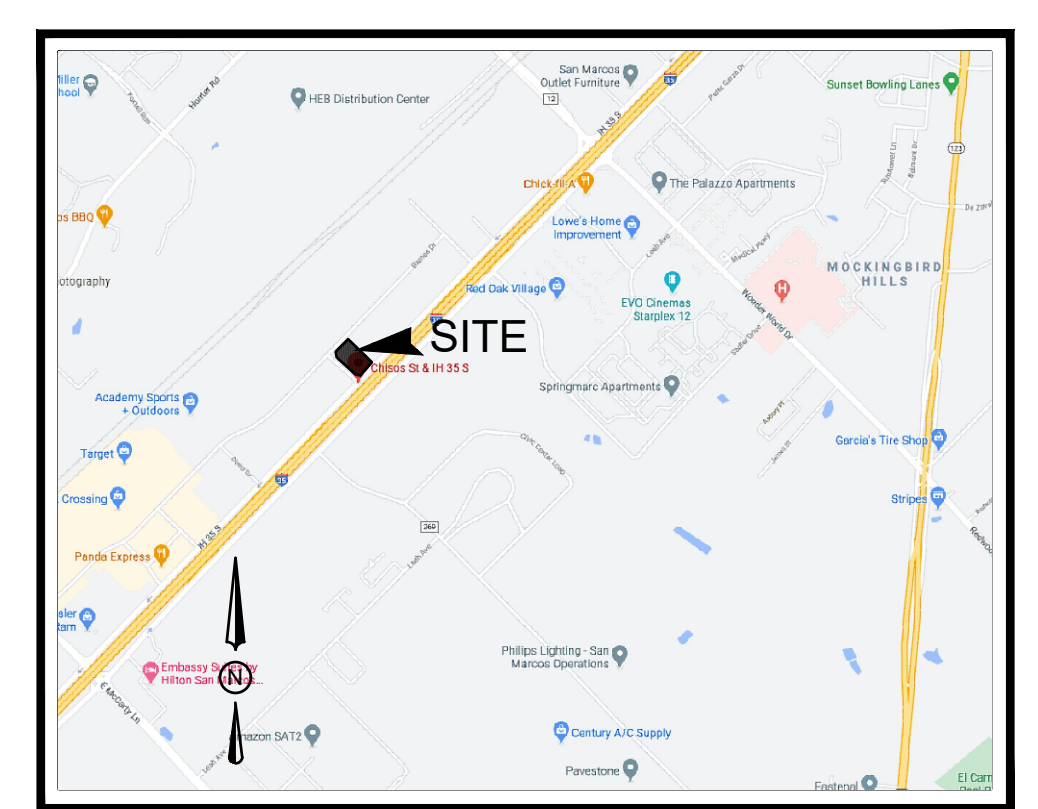
REPLAT OF L
LOT 2
THERMON
INDUSTRIAL
PARK NO. 2 -
UNIT NO. 1
(18010054)
LOT 2-A
BLOCK 2
CTEC SM PROPERTY, LLC
(DOC. NO. 18010956)

LEGEND

○ IRON PIPE FOUND	□ GAS METER
○ IRON ROD FOUND	□ TELEPHONE PIEDestal
○ IRON ROD SET	□ CABLE PIEDestal
× 12" IN CONCRETE	○ SANITARY SEWER MANHOLE
▲ PK FOUND	○ STORM SEWER MANHOLE
○ CALCULATED POINT	○ ELECTRIC GROUND
■ CONCRETE MONUMENT	○ CONTROL POINT
○ FIRE HYDRANT	○ UNDERGROUND UTILITY MARKER SIGN
○ WATER METER	○ UNDERGROUND UTILITY TEST STATION
○ WATER VALVE	○ SIGN POST
○ CLEANOUT	○ ELECTRIC TRANSFORMER
○ GAS VALVE	□ TRAFFIC SIGNAL BOX
○ POWER POLE	○ PUBLIC UTILITY EASEMENT
○ DOWN GUY	○ DRAINAGE EASEMENT
□ ELECTRIC METER	○ B.L. BUILDING LINE
○ LIGHT POLE	○ RECORD CALL
--- WOOD FENCE	○ EXISTING GAS
--- CHAIN LINK FENCE	○ EXISTING GAS
--- WIRE FENCE	○ EXISTING SANITARY SEWER
□ METAL FENCE	○ EXISTING FIBER OPTIC
	○ EXISTING WATER
	○ OVERHEAD ELECTRIC LINE

PAVING LEGEND

EXPANSION JOINT (@ 60' MAX.)	[Symbol]
SAWCUT JOINT (@ 15' MAX.)	[Symbol]
4" SIDEWALK	[Symbol]
5" LIGHT DUTY CONCRETE	[Symbol]
6" HEAVY DUTY CONCRETE	[Symbol]
7" HEAVY DUTY DUMPSTER CONCRETE	[Symbol]
TXDOT/CITY DRIVEWAY CONCRETE	[Symbol]
HEAVY DUTY CONCRETE PER FUELING PLANS	[Symbol]
HEAVY DUTY CONCRETE PER FUELING PLANS	[Symbol]
SANITARY SEWER MANHOLE	[Symbol]
SANITARY SEWER CLEANOUT	[Symbol]
SANITARY SEWER DOUBLE CLEANOUT	[Symbol]
DOMESTIC WATER METER	[Symbol]
IRRIGATION METER	[Symbol]
FIRE HYDRANT	[Symbol]
FIRE DEPARTMENT CONNECTION-FDC	[Symbol]
LIGHT POLE	[Symbol]



- PAVING GENERAL NOTES**
- STRIP & REMOVE FROM THE CONSTRUCTION AREA ALL TOPSOIL, ORGANICS & VEGETATION TO A MINIMUM DEPTH OF 6 INCHES.
 - CONTROL JOINTS FORMED BY SAWING ARE RECOMMENDED BOTH LONGITUDINAL AND TRANSVERSE DIRECTIONS. CONTROL JOINT SHALL BE SAWED WITHIN 3 HOURS AFTER PLACING CONCRETE. JOINTS SHALL BE PROPERLY CLEANED AND SEALED AS SOON AS POSSIBLE AFTER JOINTS ARE CUT.
 - DRAINAGE SHOULD BE MAINTAINED AWAY FROM THE FOUNDATION, BOTH DURING AND AFTER CONSTRUCTION. WATER SHOULD NOT BE ALLOWED TO POND NEAR THE FOUNDATION. THE FOLLOWING ITEMS SHOULD PROVIDE FOR POSITIVE DRAINAGE OF WATER AWAY FROM THE FOUNDATION: SIDEWALKS AND OTHER CONCRETE FLAT WORK, PARKING AREAS, DRIVEWAYS AND OTHER SURFACE DRAINAGE FEATURES, AND LANDSCAPING.
 - FRENCH DRAINS ARE RECOMMENDED AROUND ANY SLABS WHERE SEEPING GROUND WATER IS ENCOUNTERED DURING CONSTRUCTION.
 - SIDEWALK AROUND THE BUILDING SHALL NOT BE STRUCTURALLY CONNECTED TO THE BUILDING FOUNDATION UNLESS IT'S NOTED ON THE STRUCTURAL PLANS.
 - ALL EXPANSION JOINTS AND CRACK CONTROL JOINTS SHOULD BE SEALED TO PREVENT THE INFILTRATION OF WATER INTO THE SUBSURFACE. THIS IS PARTICULARLY IMPORTANT AROUND IRRIGATED LANDSCAPING AND ALONG THE DRAINAGE PATH OF ROOF DOWNSPOUTS.
 - LANDSCAPE ISLANDS SHOULD BE BACKFILLED WITH LOW PLASTICITY CLAYS TO REDUCE WATER INTRUSION INTO THE SUBSURFACE PAVEMENT STRUCTURES. CURBS SHOULD BE PROVIDED WITH WEEP HOLES IN LANDSCAPE AREAS TO REDUCE THE BUILD UP OF HYDROSTATIC PRESSURE AND TO REDUCE THE INTRUSION OF WATER INTO THE SUBSURFACE MATERIAL.
 - CURB AND GUTTER SHALL CONSIST OF STEEL REINFORCED CONCRETE AND SHALL BE SIX (6") INCHES HIGH, UNLESS OTHERWISE NOTED ON THE SITE/GRADING PLANS.
 - THE CONTRACTOR SHALL PROCEED WITH PAVING NO MORE THAN SEVENTY-TWO (72) HOURS AFTER DENSITY/MOISTURE TESTS HAVE BEEN TAKEN AND PASSED BY A REGULAR TESTING FIRM.
 - MANHOLE RIM ELEVATIONS, CLEAN-OUTS, VALVE BOXES, ETC. SHALL BE ADJUSTED TO FINISHED GRADE BY THE PAVING CONTRACTOR AT THE TIME OF PAVING.
 - SEE IRRIGATION PLAN FOR IRRIGATION SLEEVE PLACEMENT PRIOR TO PAVING CONSTRUCTION.

JOINT NOTE:

- GO TO INSTALL EXPANSION JOINTS EVERY 60' MAX. AND WHEREVER THERE IS CHANGE IN PAVEMENT TYPE/ THICKNESS.
- PAVEMENT SAW CUT SHALL BE MAX. 15' APART.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



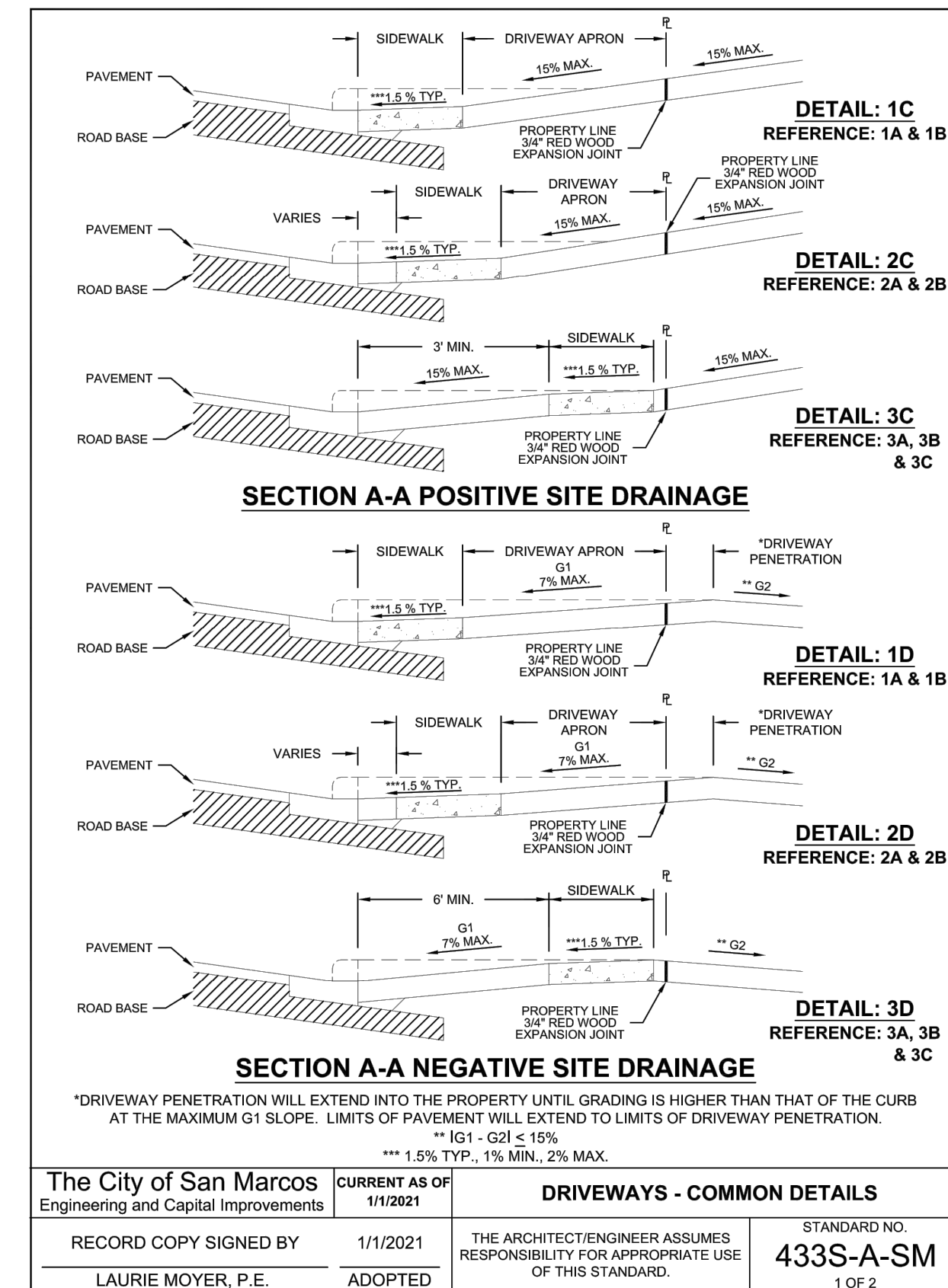
PAVING PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-8.0

TX. P.E. FIRM #11525



DRIVEWAY	CONCRETE THICKNESS	REINFORCEMENT	DRIVEWAY BASE
TYPE I	6" CLASS A 3,000 PSI	#3 BARS PLACED ON CHAIRS AT MID DEPTH OF SLAB AT NO MORE THAN 18" O.C. BOTH DIRECTIONS	2" COMPACTED SAND
TYPE II	7" CLASS C 3,600 PSI	#4 BARS PLACED ON CHAIRS AT MID DEPTH OF SLAB AT NO MORE THAN 18" O.C. BOTH DIRECTIONS	2" COMPACTED SAND

NOTES:

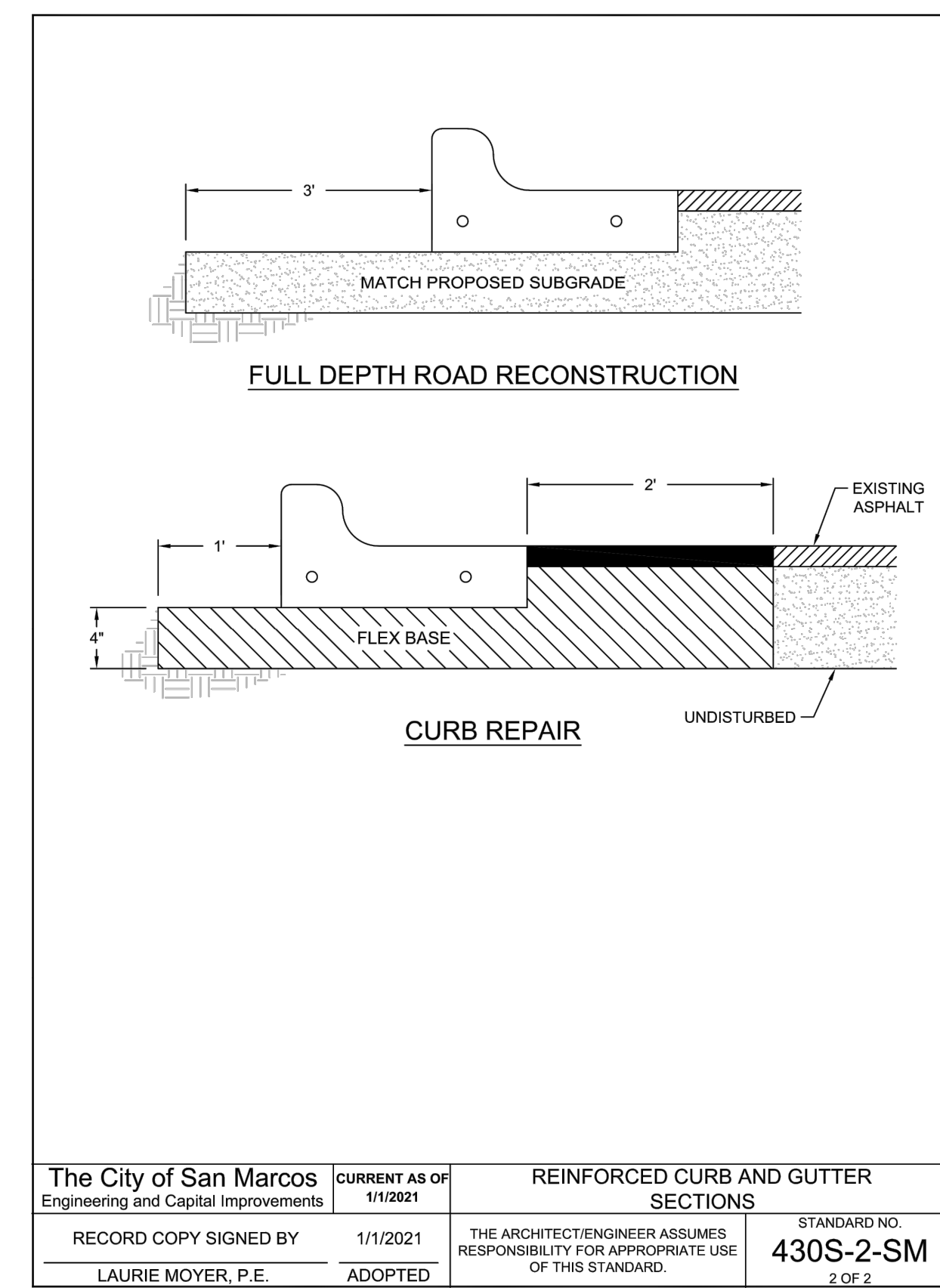
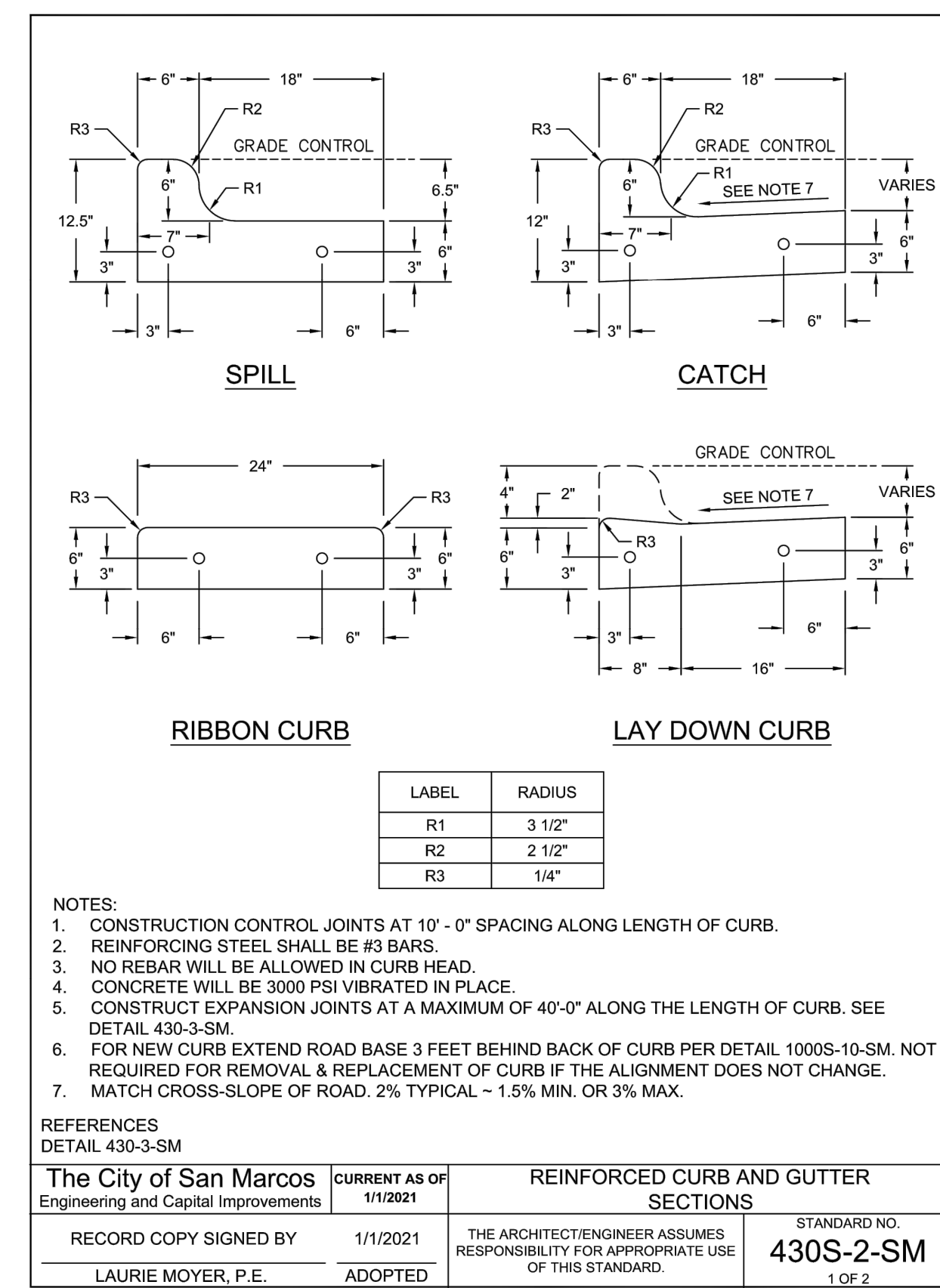
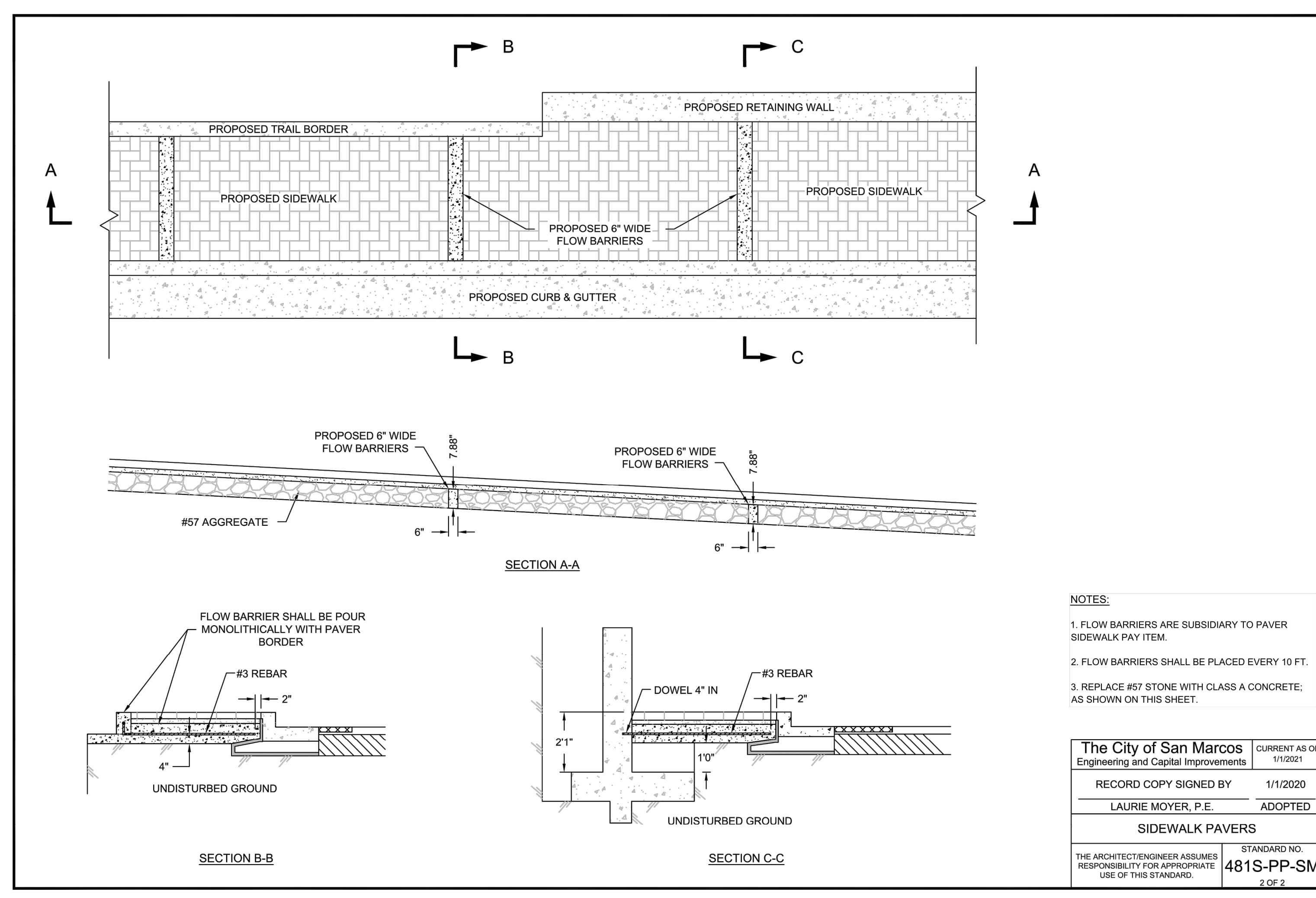
A. NEW PAVEMENT WILL MATCH EXISTING PAVEMENT THICKNESS AND TYPE.
 B. IN NO INSTANCE SHALL THE REBAR BE PLACED DIRECTLY ON THE SUBGRADE, SAND CUSHION LAYER OR CLOSER THAN 2" TO THE OUTSIDE EDGE OF THE CONCRETE.

NOTES:

- IF DIMENSION IS LESS THAN 5', REMOVE CURB AND GUTTER TO EXISTING JOINT AND POUR MONOLITHICALLY WITH DRIVEWAY. (SEE SHEET 1)
- ALL DRIVEWAY WILL HAVE A CONTROL JOINT DOWN CENTER OF DRIVEWAY AND ON BOTH SIDES OF THE SIDEWALK PATH ACROSS THE DRIVEWAY. (SEE SHEET 3)
- WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHALL BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2" IS GREATER THAN 15%.
- DRIVEWAY WIDTHS AND RADIUS DIMENSIONS, ONE/TWO WAY TRAVEL REQUIREMENTS, AND GEOMETRIC LAY-OUT ARE HIGHLY VARIABLE, SUBJECT TO SITE SPECIFIC CONDITIONS AND REQUIREMENTS. SEE TRANSPORTATION CRITERIA MANUAL SECTION 5 "DRIVEWAYS" IF CONFLICT WITH DETAIL.
- IF THE BASE IS OVER-EXCAVATED WHERE THE CURB AND GUTTER WERE REMOVED, BACK-FILL WITH CONCRETE MONOLITHICALLY WITH THE DRIVEWAY.
- DRIVEWAY SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
- WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.
- PAY ITEM: ASPHALT TRANSITION, LAYDOWN CURB AND GUTTER WILL BE PAID FOR AS SEPARATE LINE ITEM UNLESS NOTED ON PLANS. CURB AND GUTTER INSTALLED ON THE RADIUS OR ALONG THE RAMPS WILL BE SUBSIDIARY TO DRIVEWAY LINE ITEM.
- ALL NEW DRIVEWAYS SHALL BE CONSTRUCTED PER DETAIL 433S-AR-SM, DRIVEWAYS - RADIUS CONNECTION 433S-AR-SM EXCEPT IN NEW SUBDIVISIONS (TYPICALLY) WHERE HOUSES ARE BUILT AFTER THE CURB IS INSTALLED.
- IF BOTH OF THE FOLLOWING CONDITIONS ARE MET, THEN DETAIL 433S-AF-SM - DRIVEWAYS - FLARED CONNECTION MAY BE USED:
 A) THE DRIVEWAY CLASSIFIED AS TYPE I.
 B) THERE AN EXISTING CURB ALREADY INSTALLED AT THE PROPOSED DRIVEWAY LOCATION.

REFERENCES
 DETAIL 430S-2-SM
 DETAIL 430S-3-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	DRIVEWAYS - COMMON DETAILS	STANDARD NO. 433S-2-SM 2 OF 2
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	



NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



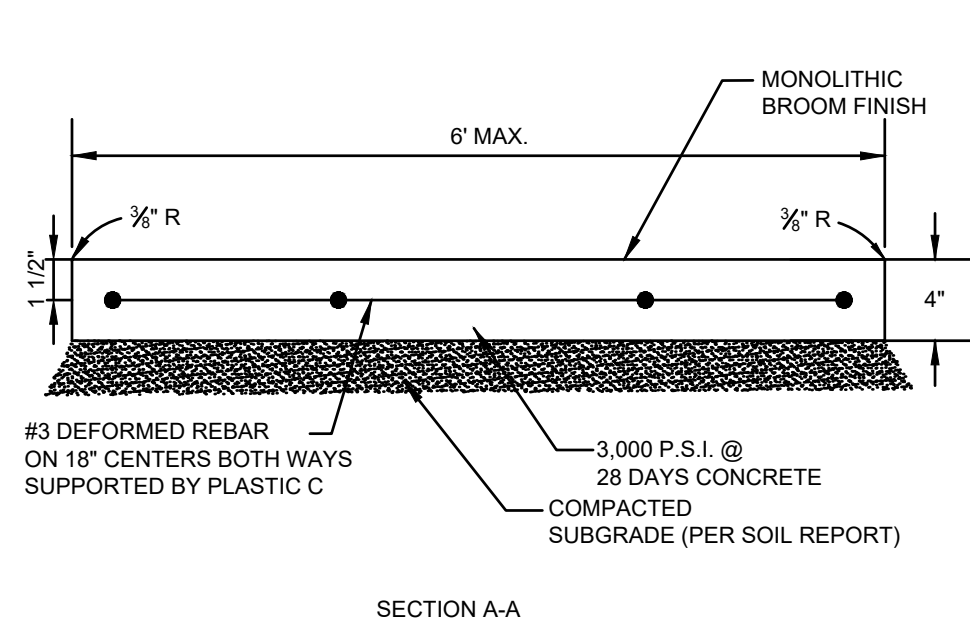
PAVING DETAILS-1
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

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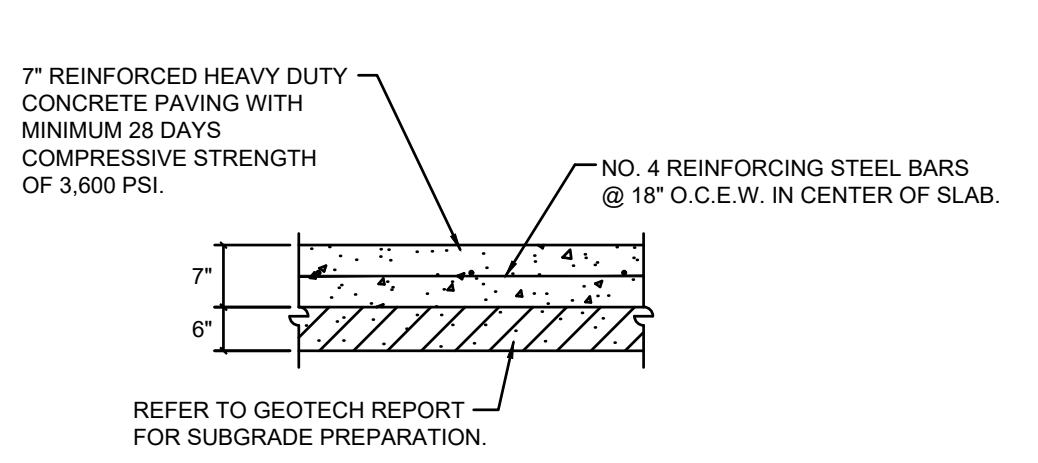
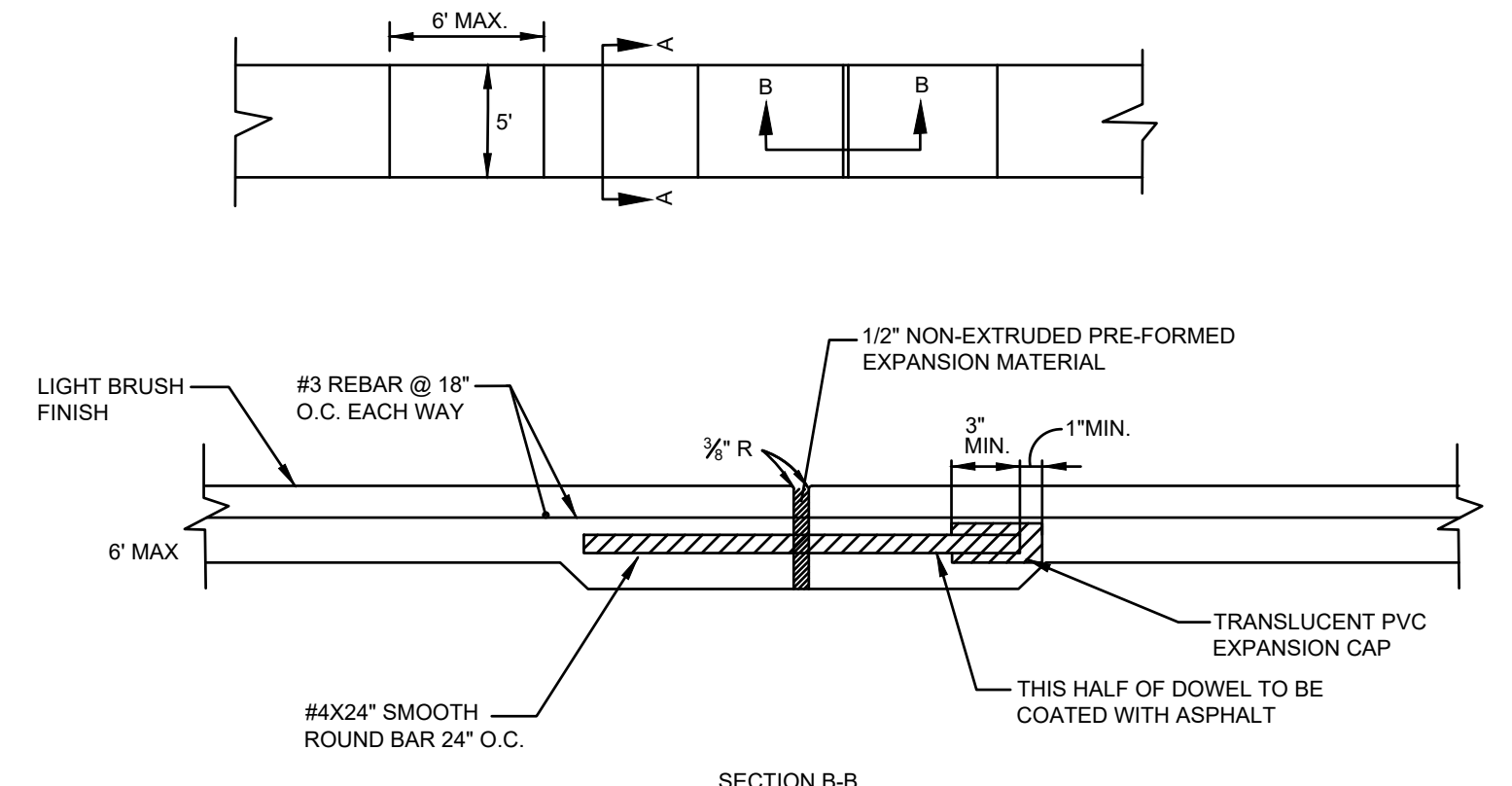
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SCALE BAR	103-20	C-8.1

TX. P.E. FIRM #11525

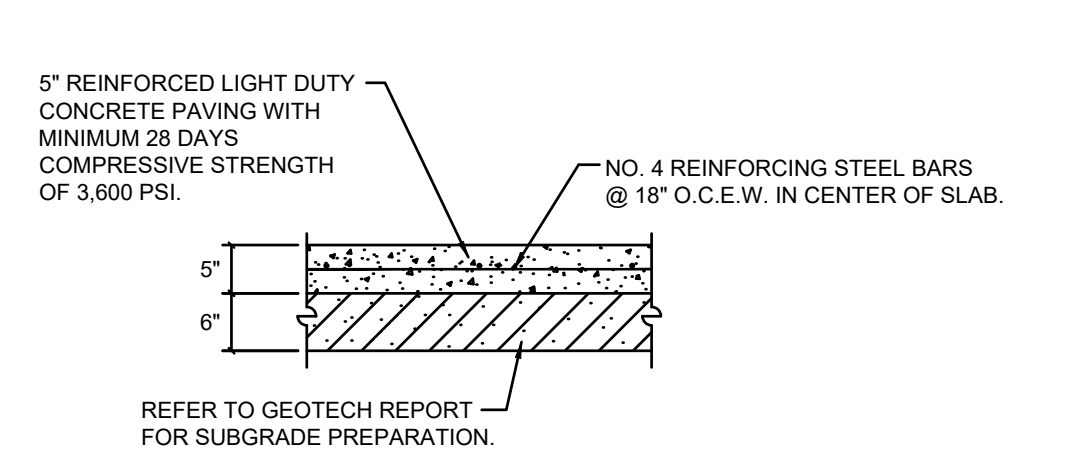


PRIVATE SIDEWALK DETAIL
N.T.S.



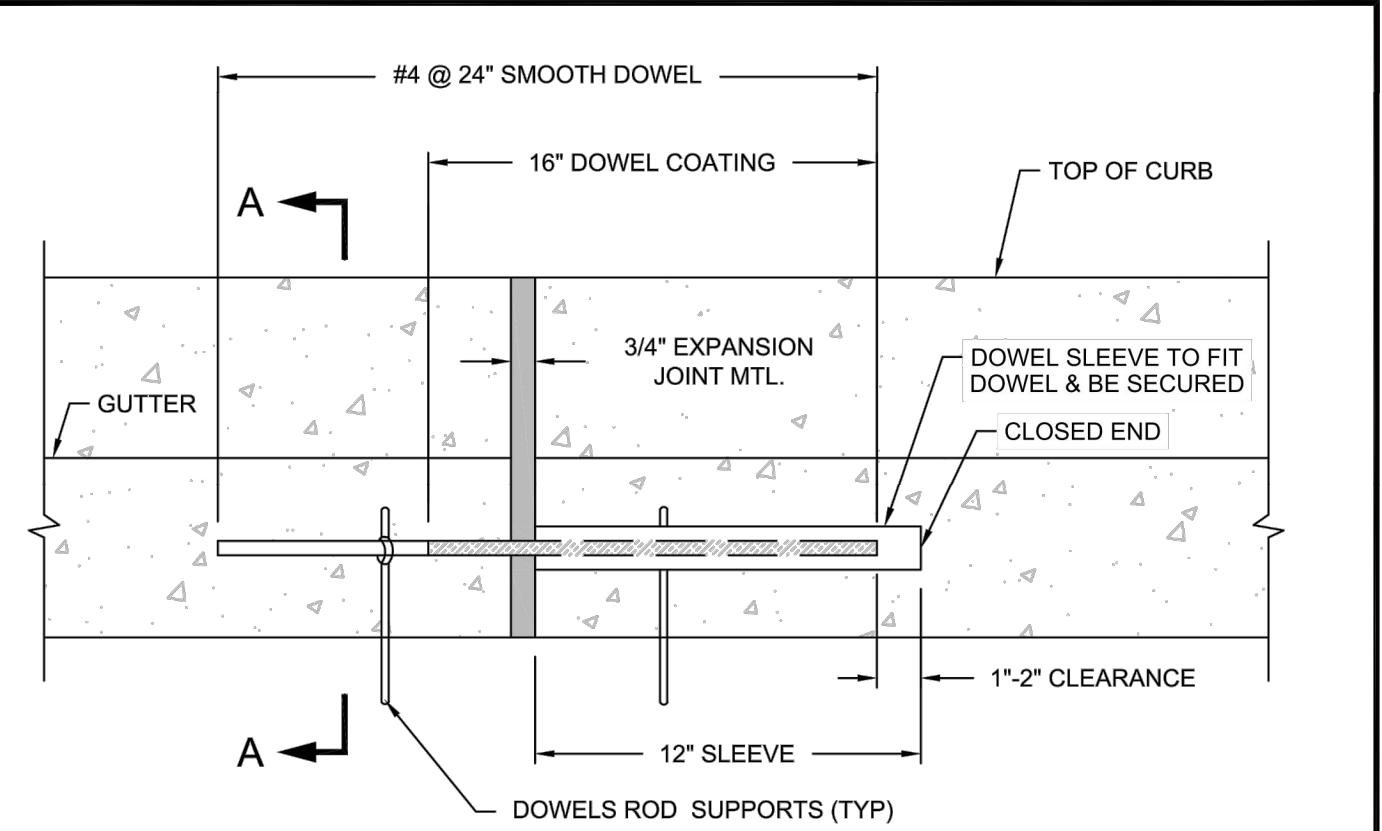
NOTE:
1. CONTRACTOR TO VERIFY WITH CITY REQUIREMENTS, SHOULD THE CITY REQUIREMENTS DIFFER FROM DETAIL, THE CITY REQUIREMENTS WILL SUPERCEDE.
2. CONTRACTOR TO VERIFY REQUIREMENTS FOR INSTALLATION OF PAVEMENT IN FIRE LANE. CONTRACTOR TO INSTALL ACCORDING TO LOCAL, STATE OR GOVERNMENT JURISDICTION.

7" CONCRETE PAVEMENT
N.T.S.

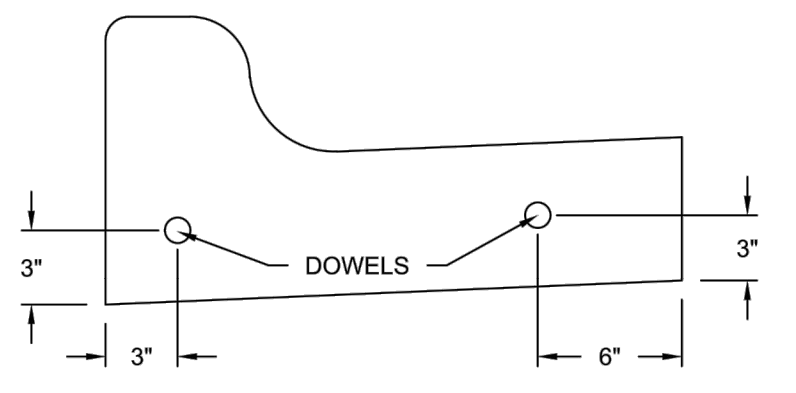


NOTE:
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5" CONCRETE PAVEMENT
N.T.S.



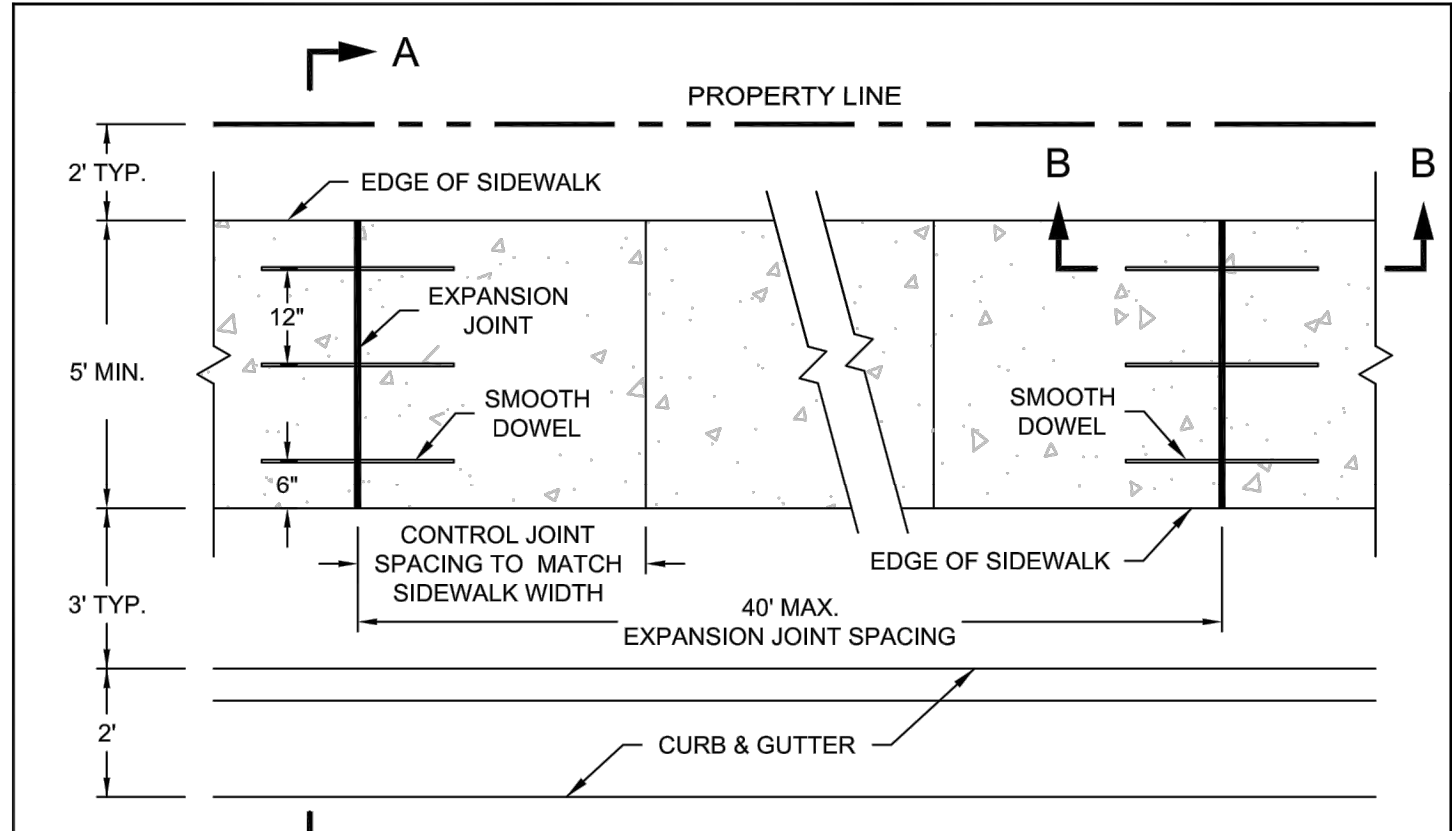
CURB EXPANSION JOINT DOWEL DETAIL



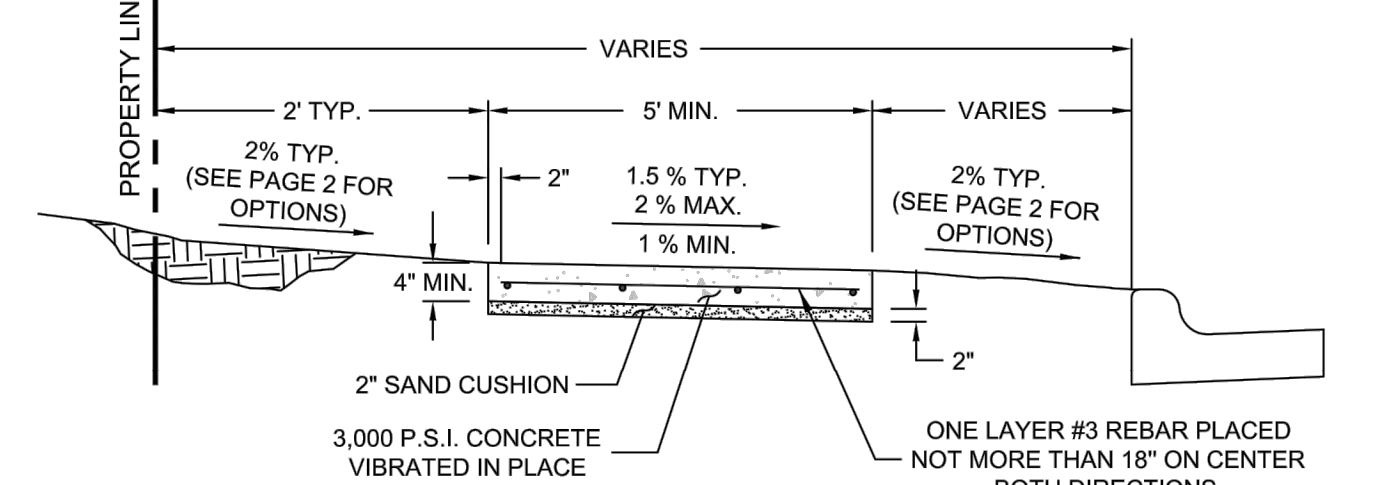
SECTION A - A

NOTES:
1. CONSTRUCT EXPANSION JOINTS AT A MAXIMUM OF 40'-0" ALONG THE LENGTH OF CURB, SIDEWALK AND CONCRETE PAVEMENT.
2. DOWELS MINIMUM SIZE IS 1/2" AND WILL BE EQUAL TO THE REBAR SIZE IF REBAR IN THE RE-ENFORCED CONCRETE IF GREATER THAN 1/2".

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CURB EXPANSION JOINT DOWEL DETAIL	STANDARD NO. 430S-3-SM 1 OF 1
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	6/1/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	



PLAN VIEW

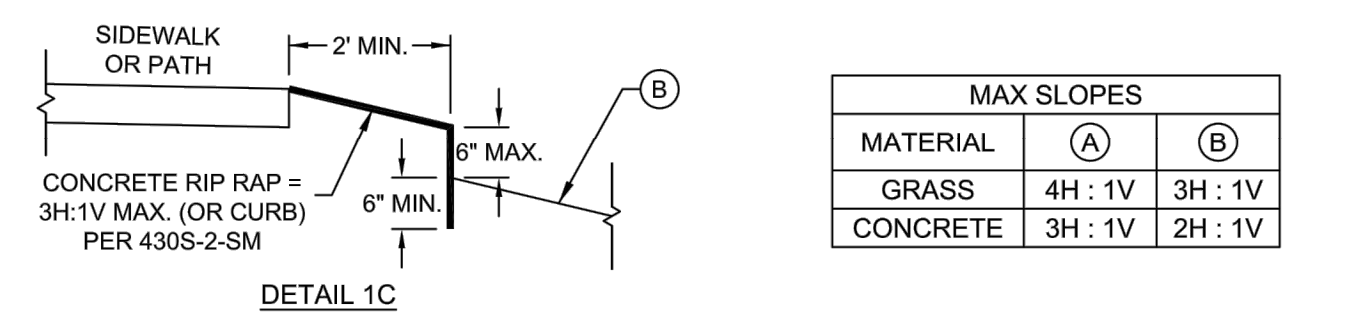
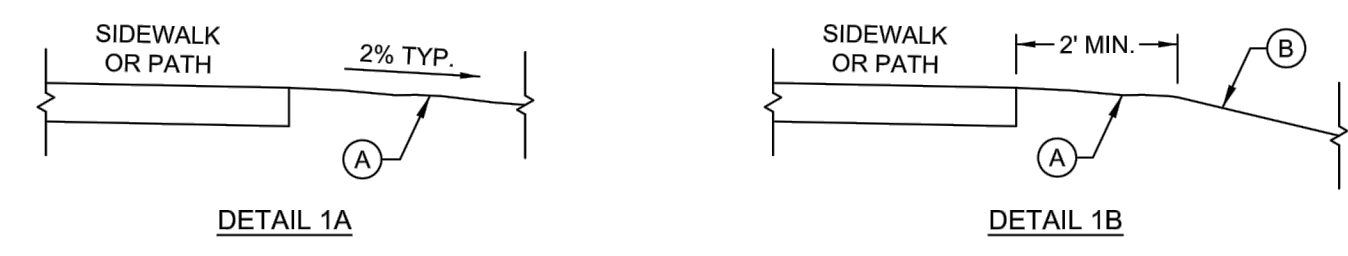


SECTION A - A

NOTES FOR REBAR PLACEMENT:
1. REINFORCEMENT SHALL BE ACCURATELY PLACED AT SLAB MID-DEPTH AND HELD FIRMLY IN PLACE BY MEANS OF BAR SUPPORTS OF ADEQUATE STRENGTH AND NUMBER THAT WILL PREVENT DISPLACEMENT AND KEEP THE STEEL AT ITS PROPER POSITION DURING THE PLACEMENT OF THE P.C. CONCRETE.
2. IN NO INSTANCE SHALL THE STEEL BE PLACED DIRECTLY ON THE SUBGRADE, SAND CUSHION LAYER OR CLOSER THAN 2" TO THE OUT SIDE EDGE OF THE CONCRETE.

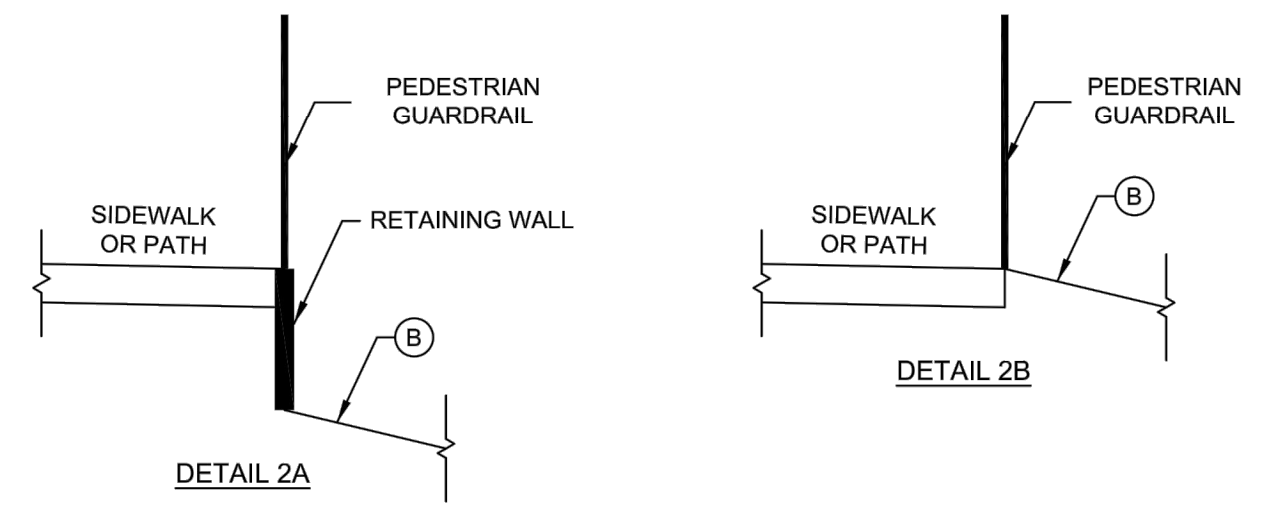
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SIDEWALK CONSTRUCTION	STANDARD NO. 432S-1-SM 1 OF 2
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	

NOTES:
1. CONTROL JOINTS SHALL BE 1/4 INCH WIDE AND 3/4 INCH DEEP TOOLED OR SAW CUT INTO SIDEWALK.
2. CONSTRUCT 3/4" REDWOOD EXPANSION JOINTS AT MAXIMUM 40'-0" SPACING ALONG LENGTH OF SIDEWALK. EXPANSION JOINTS SHALL INCLUDE SMOOTH DOWELS CENTERED TO THE JOINT AT 12" C.C. PER DETAIL 430S-3-SM.
3. IF SIDEWALK IS ADJOINED TO CURB, COLD JOINT IS REQUIRED, UNLESS APPROVED BY THE CITY INSPECTOR.
4. RAMPS AT INTERSECTION WILL FOLLOW CITY DETAIL 432S-3-SM.
5. MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY SPECIFICATIONS.
6. REFER TO SPEC. 410S.25 FOR DEFECTIVE WORK. THE LIMITS OF THE REPLACEMENT SHALL EXTEND FROM JOINT TO JOINT, AS DETERMINED BY THE INSPECTOR.



MATERIAL	(A)	(B)
CONCRETE RIP RAP = 3H:1V MAX. (OR CURB) PER 430S-2-SM	6" MIN.	6" MAX.

(DETAIL 1) : NO PROTECTION REQUIRED

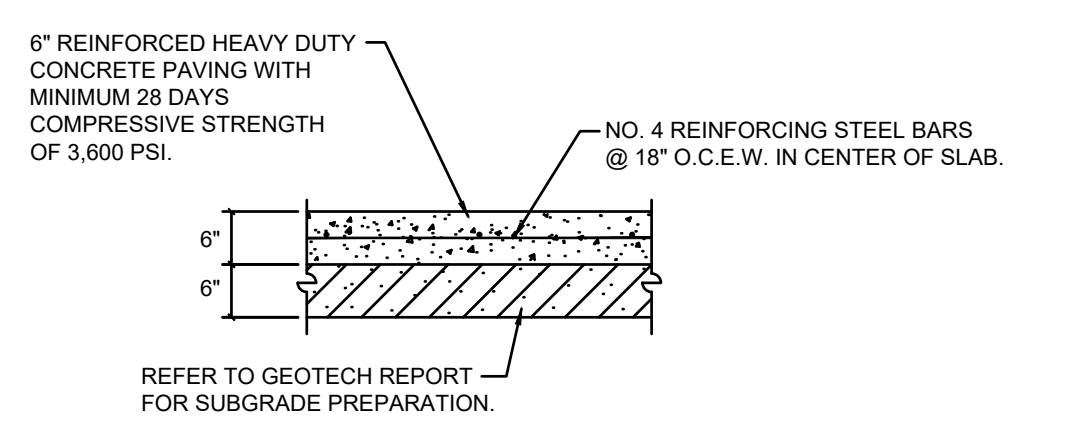


(DETAIL 2) : EDGE PROTECTION REQUIRED

REFERENCES
DETAIL 430S-3-SM
DETAIL 432S-3-SM

WHEN OPTIONS SHOWN IN (DETAIL 1) CAN NOT BE MET

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SIDEWALK CONSTRUCTION	STANDARD NO. 432S-1-SM 2 OF 2
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	



NOTE:
1. CONTRACTOR TO VERIFY WITH CITY REQUIREMENTS, SHOULD THE CITY REQUIREMENTS DIFFER FROM DETAIL, THE CITY REQUIREMENTS WILL SUPERCEDE.
2. CONTRACTOR TO VERIFY REQUIREMENTS FOR INSTALLATION OF PAVEMENT IN FIRE LANE. CONTRACTOR TO INSTALL ACCORDING TO LOCAL, STATE OR GOVERNMENT JURISDICTION.

6" CONCRETE PAVEMENT
N.T.S.

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



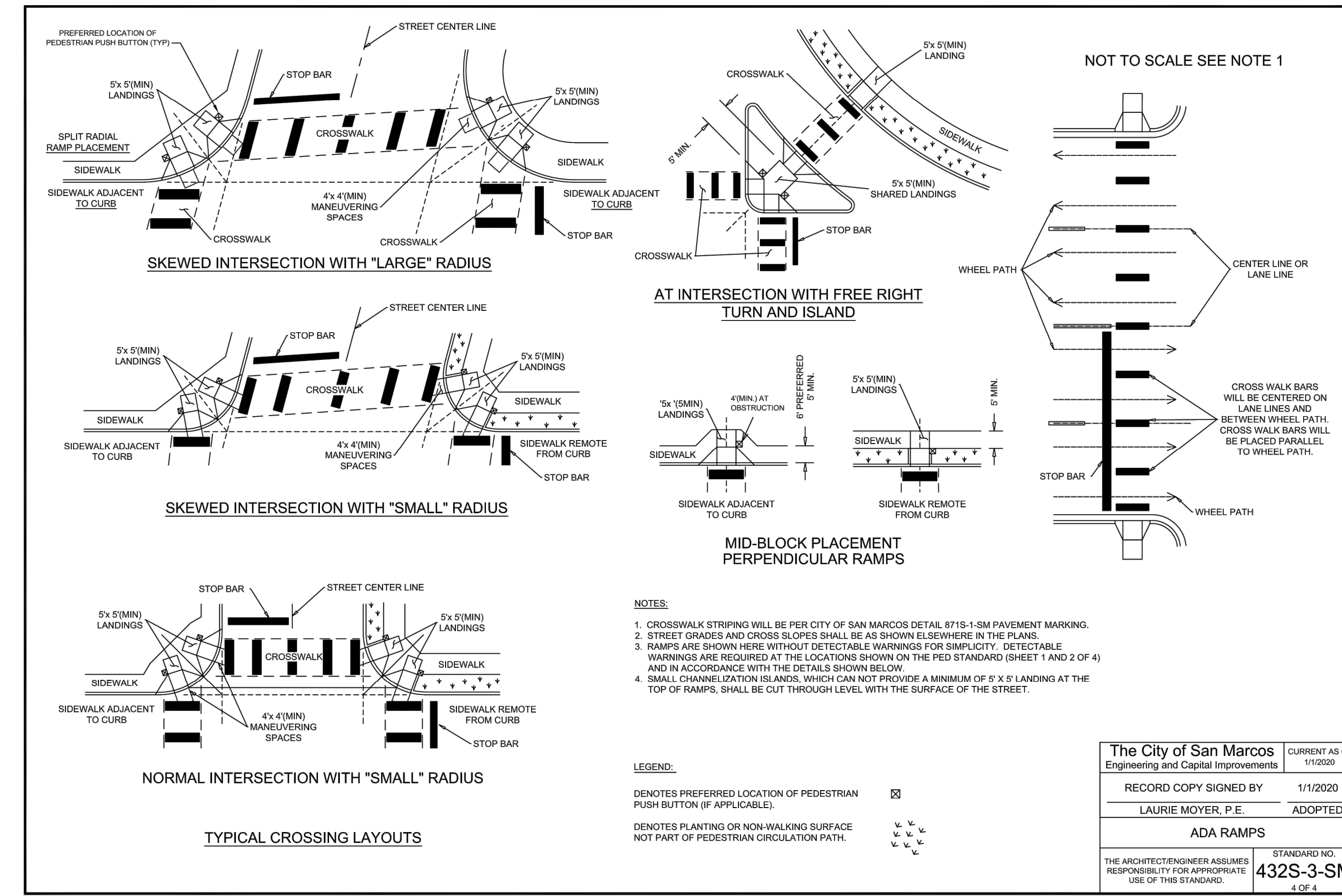
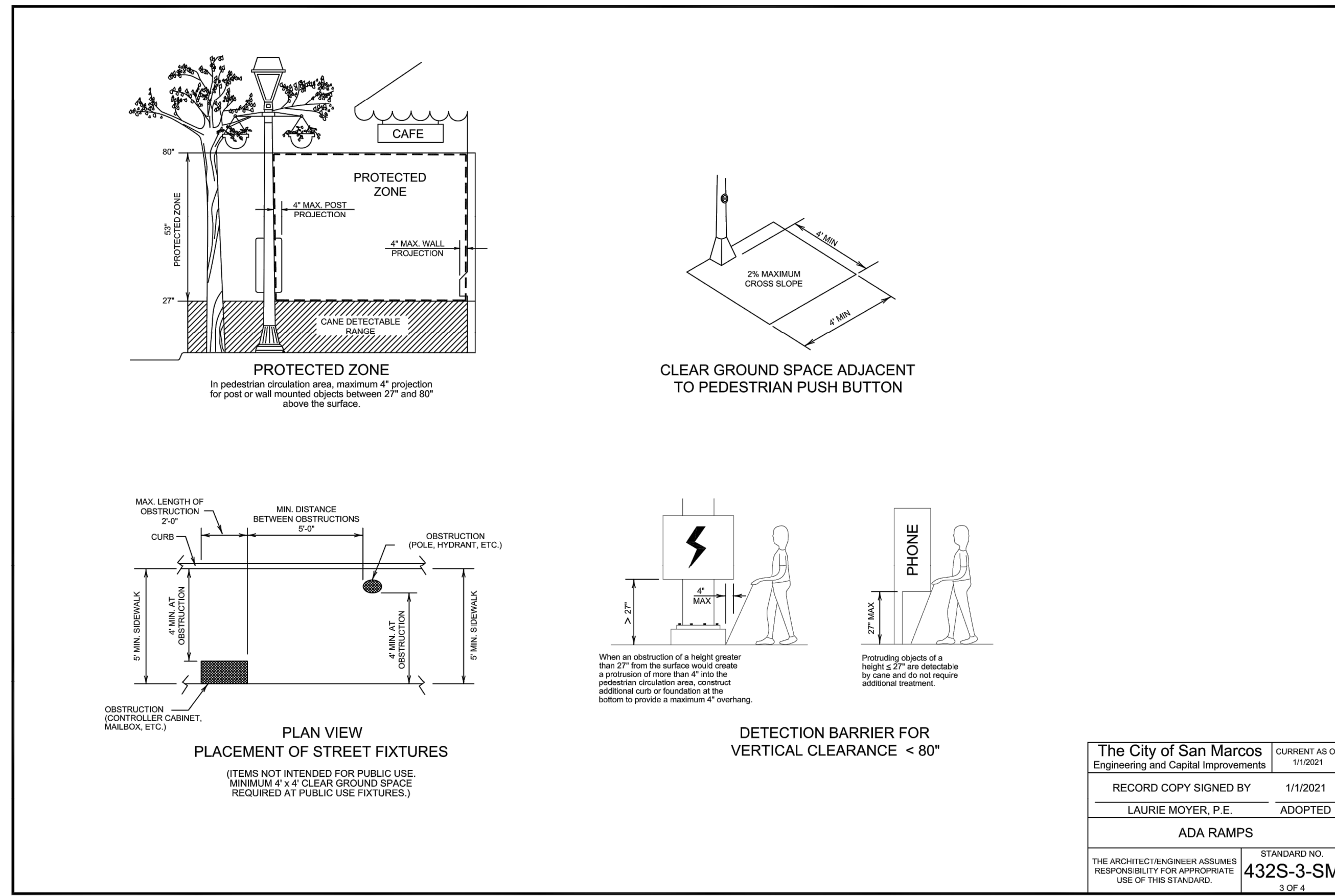
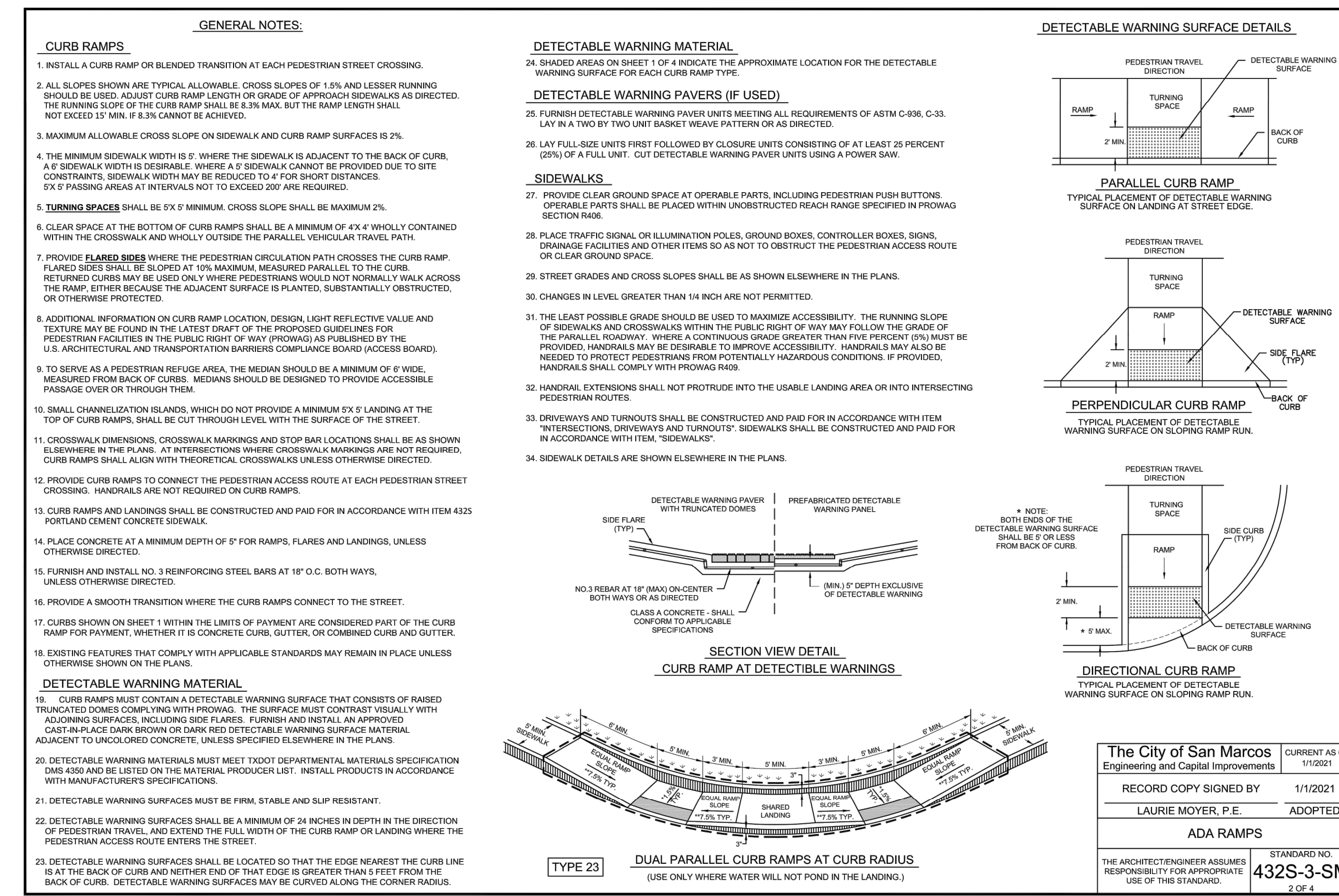
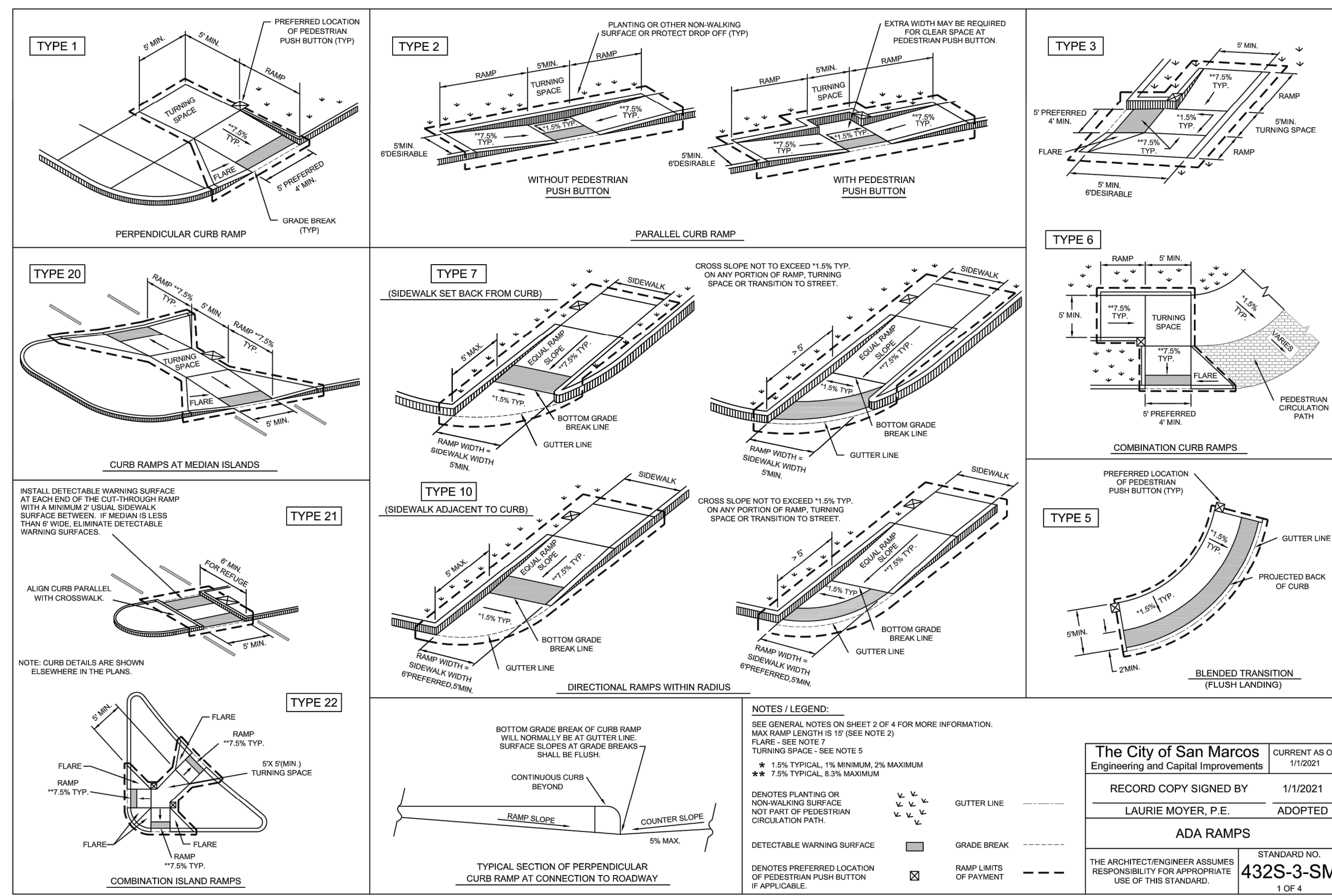
PAVING DETAILS-2
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

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W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2022	SCALE BAR	103-20	C-8.2

TX. P.E. FIRM #11525



PAVING DETAILS-3
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

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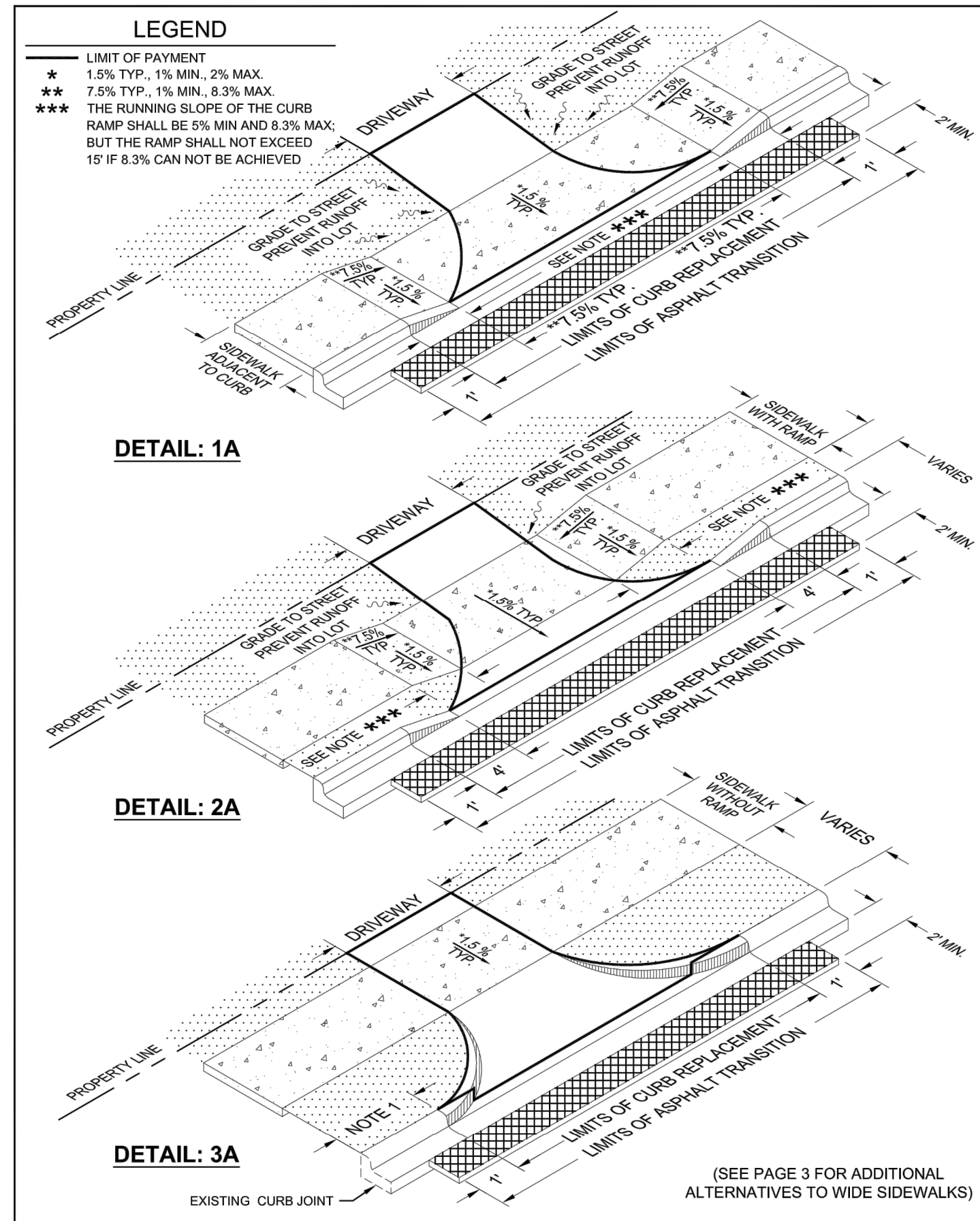
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2022	SCALE #1	103-20	C-8.3

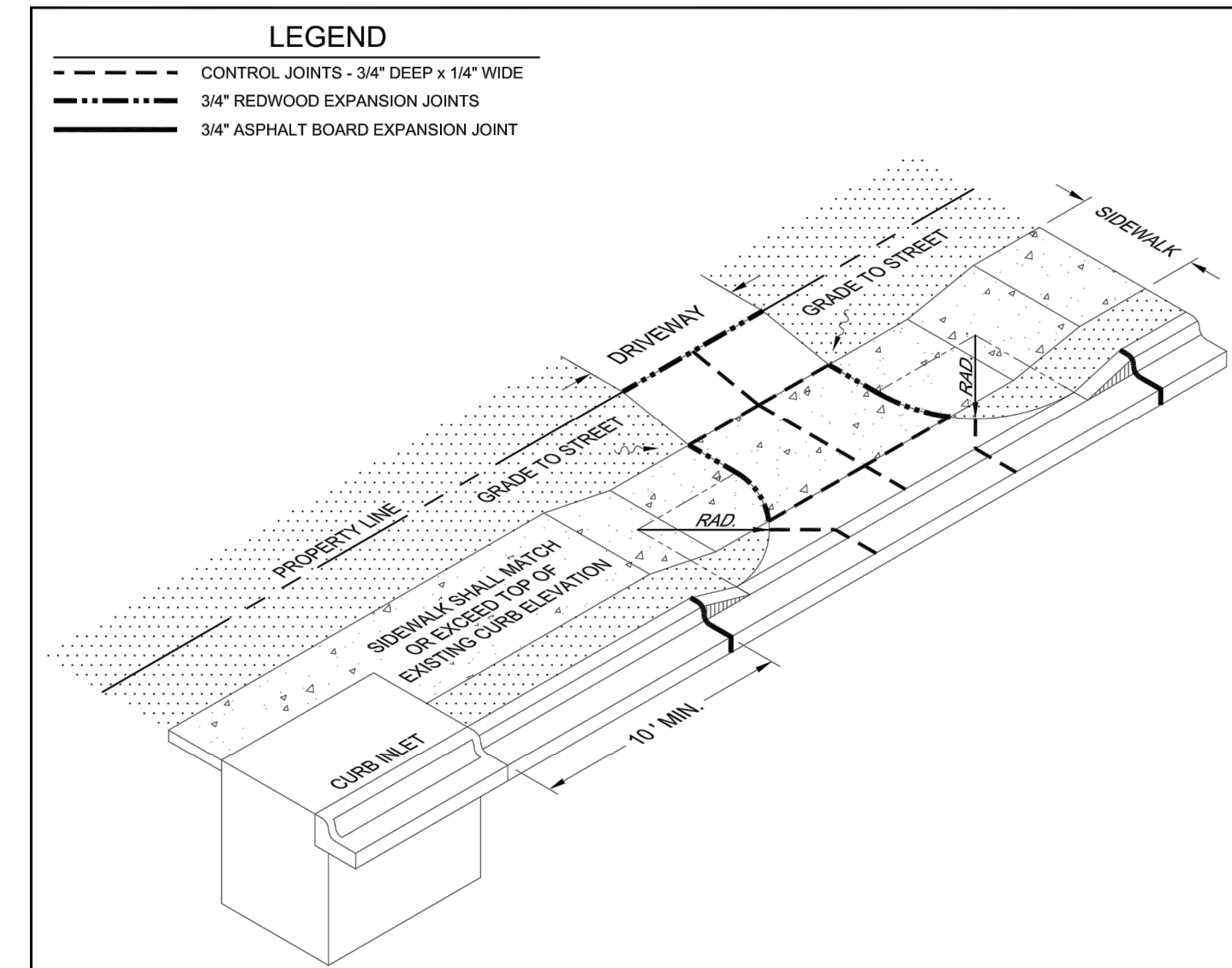
TX. P.E. FIRM #11525

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
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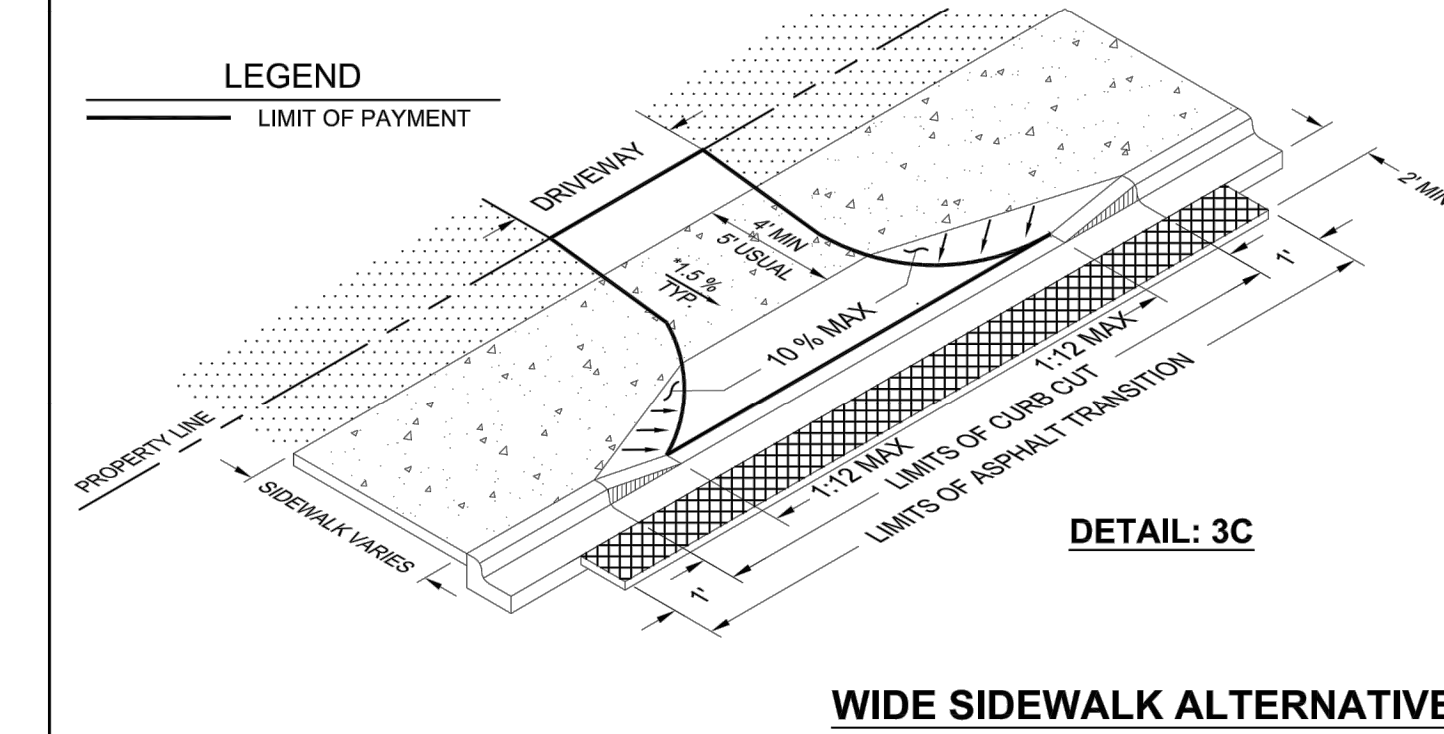
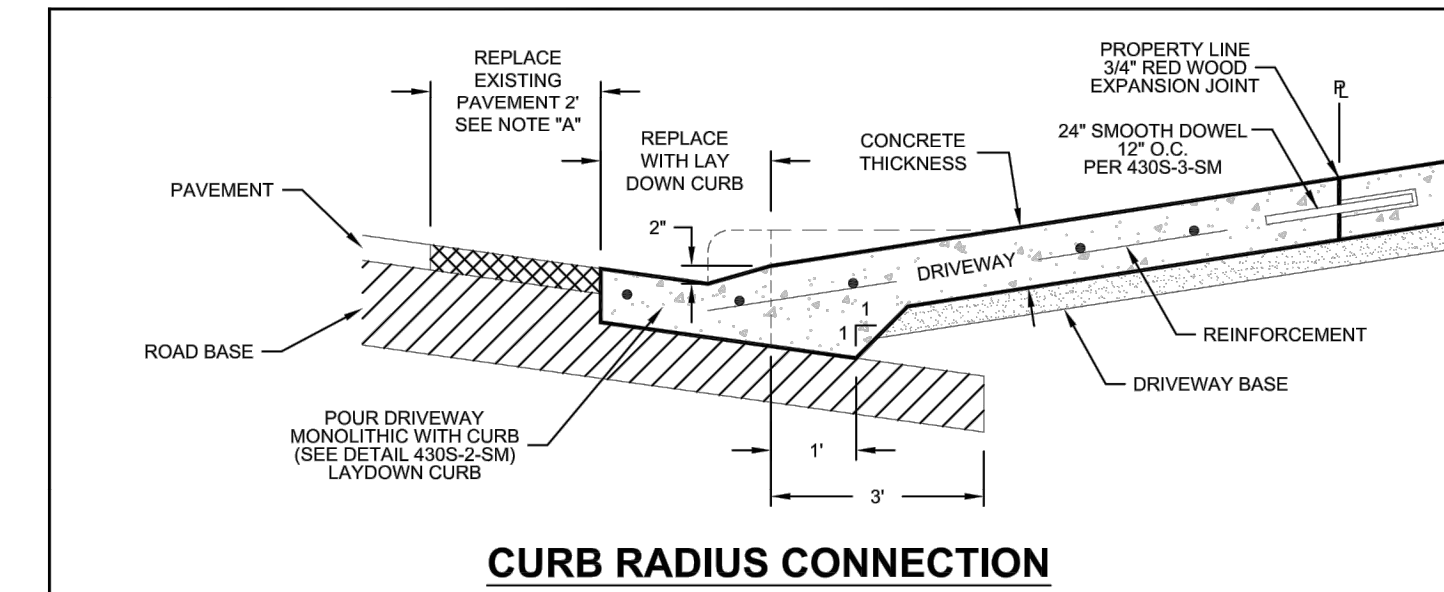
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD DRIVEWAYS RADIUS CONNECTION	STANDARD NO. 433S-AR-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 1 OF 3



DRIVEWAY TYPE	DRIVEWAY CRITERIA USE	DRIVEWAY WIDTH FEET		RADIUS DIM. (RAD) FEET	
		MIN.	MAX.	MIN.	MAX.
I	RESIDENTIAL UP TO 6 OFF-STREET PARKING SPACES	10'	18'	5'	5'
II	RESIDENTIAL 7+ OFF-STREET PARKING SPACES (ONE-WAY)	12'	16'	5'	10'
II	RESIDENTIAL 7+ OFF-STREET PARKING SPACES (TWO-WAY)	20'	24'	5'	10'
II	MIXED USE / COMMERCIAL (ONEWAY)	12'	18'	5'	10'
II	MIXED USE / COMMERCIAL (TWOWAY)	20'	32'	10'	15'
II	INDUSTRIAL / SERVICE	30'	40'	10'	30'

DRIVEWAY DIMENSION

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD DRIVEWAYS RADIUS CONNECTION	STANDARD NO. 433S-AR-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 2 OF 3



REFERENCES
DETAIL 430S-2-SM
DETAIL 430S-3-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD DRIVEWAYS RADIUS CONNECTION	STANDARD NO. 433S-AR-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2021	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 3 OF 3

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
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7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



PAVING DETAILS-4
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

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P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SCALE BAR	103-20	C-8.4

TX. P.E. FIRM #11525

LEGEND

⊙	IRON PIPE FOUND	⊙	GAS METER
⊙	IRON ROD FOUND	⊙	TELEPHONE PEDESTAL
⊙	IRON ROD SET	⊙	CABLE PEDESTAL
⊙	PK FOUND	⊙	SANITARY SEWER MANHOLE
⊙	CONCRETE MONUMENT	⊙	STORM SEWER MANHOLE
⊙	CONCRETE MONUMENT	⊙	ELECTRIC GROUND
⊙	CONTROL POINT	⊙	UNDERGROUND UTILITY MARKER SIGN
⊙	UNDERGROUND UTILITY TEST STATION	⊙	RECORD GALL
⊙	ELECTRIC TRANSFORMER	⊙	TRAFFIC SIGNAL BOX
⊙	PUBLIC UTILITY EASEMENT	⊙	UNDERGROUND UTILITY TEST STATION
⊙	DRAINAGE EASEMENT	⊙	SIGN POST
⊙	B.L. BUILDING LINE	⊙	EXISTING GAS
⊙	RECORD GALL	⊙	EXISTING SANITARY SEWER
⊙	EXISTING GAS	⊙	EXISTING FIRE OPTIC
⊙	EXISTING SANITARY SEWER	⊙	EXISTING WATER
⊙	EXISTING FIRE OPTIC	⊙	OVERHEAD ELECTRIC LINE
⊙	EXISTING WATER		



UTILITY LEGEND

SANITARY SEWER LINE	SAN >
WATER MAIN	W
DOMESTIC WATER LINE	D
STORM LINE	D
SANITARY SEWER CLEANOUT	⊙
SANITARY SEWER DOUBLE CLEANOUT	⊙
DOMESTIC WATER METER	⊙
IRRIGATION METER	⊙
FIRE HYDRANT	⊙

CAR WASH FLOW CALCULATOR

Select Development Type: Type II

Fixture	Occupancy	Type	Amount
Bathtub	Private	Faucet	
Bathtub	Public	Faucet	
Bidet	Private	Faucet	
Combination Fixture	Private	Faucet	
dishwashing machine	Private	Automatic	
Drinking fountain	Offices, etc.	3/8" valve	
Kitchen sink	Private	Faucet	1
Kitchen sink	Hotel, Restaurant	Faucet	2
Laundry trays(1 to 3)	Private	Faucet	
Lavatory	Private	Faucet	2
Lavatory	Public	Faucet	4
Service sink	Offices, etc.	Faucet	1
Shower head	Public	Mixing Valve	
Shower head	Private	Mixing Valve	
Urinal	Public	1" flush valve	
Urinal	Public	3/4" flush valve	
Urinal	Public	flush tank	2
Urinal	Public	flush tank	2
Washing Machine(8 lb.)	Private	Automatic	
Washing Machine(8 lb.)	Public	Automatic	
Washing Machine(15 lb.)	Public	Automatic	9
Water closet	Private	Flush Valve	
Water closet	Private	Flush tank	
Water closet	Public	Flush Valve	
Water closet	Public	Flush tank	4
Water closet	Public	Flush tank	4
Water closet	Private or Public	Flushometer tank	
Bedpan Washers	AWWA Fixtures		
Dental Unit	AWWA Fixtures		
(Hose-50 ft. Wash Down)			
-1/2 in	AWWA Fixtures		
-5/8 in	AWWA Fixtures		
-3/4 in	AWWA Fixtures		

AWWA = 44.69 GPM
IPC = 26.8 GPM

This development's lowest Peak Demand from AWWA and IPC is 26.8 gpm. This development will need to install a 1" meter and has a LUE of [6]

C-STORE AND GAS STATION FLOW CALCULATOR

Select Development Type: Type II

Fixture	Occupancy	Type	Amount
Bathtub	Private	Faucet	
Bathtub	Public	Faucet	
Bidet	Private	Faucet	
Combination Fixture	Private	Faucet	
dishwashing machine	Private	Automatic	
Drinking fountain	Offices, etc.	3/8" valve	
Kitchen sink	Private	Faucet	
Kitchen sink	Hotel, Restaurant	Faucet	2
Laundry trays(1 to 3)	Private	Faucet	
Lavatory	Private	Faucet	
Lavatory	Public	Faucet	4
Service sink	Offices, etc.	Faucet	
Shower head	Public	Mixing Valve	
Shower head	Private	Mixing Valve	
Urinal	Public	1" flush valve	
Urinal	Public	3/4" flush valve	
Urinal	Public	flush tank	2
Urinal	Public	flush tank	2
Washing Machine(8 lb.)	Private	Automatic	
Washing Machine(8 lb.)	Public	Automatic	
Washing Machine(15 lb.)	Public	Automatic	
Water closet	Private	Flush Valve	
Water closet	Private	Flush tank	
Water closet	Public	Flush Valve	
Water closet	Public	Flush tank	4
Water closet	Public	Flush tank	4
Water closet	Private or Public	Flushometer tank	
Bedpan Washers	AWWA Fixtures		
Dental Unit	AWWA Fixtures		
(Hose-50 ft. Wash Down)			
-1/2 in	AWWA Fixtures		
-5/8 in	AWWA Fixtures		
-3/4 in	AWWA Fixtures		

AWWA = 62.24 GPM
IPC = 56.4 GPM

This development's lowest Peak Demand from AWWA and IPC is 56.4 gpm. This development will need to install a 1.5" or 2" meter and has a LUE of [8.5]

WATER METER & SANITARY SEWER SCHEDULE - CAR WASH

ID	TYPE	SIZE	NO.
(D)	DOMESTIC	1"	1
(I)	IRRIGATION	1"	1
	SANITARY SEWER	6"	

WATER METER & SANITARY SEWER SCHEDULE - C STORE W/ GAS STATION

ID	TYPE	SIZE	NO.
(D)	DOMESTIC	1.5"	1
(I)	IRRIGATION	1"	1
	SANITARY SEWER	6"	

NOTE: FOR CAR WASH, IT INCLUDES 2 TOILETS, 2 SINKS FOR BATH ROOM, 1 KITCHEN SINK AND 1 SERVICE SINK. BESIDES, 12,000 GALLONS FROM OTHER FEATURES. THE 9 WASH MACHINES HAS BEEN CHOSEN TO EQUATE THE REST OF FEATURES, SINCE THE TOTAL FLOW OF 9 WASH MACHINES IS CLOSE TO 12000 GPD.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



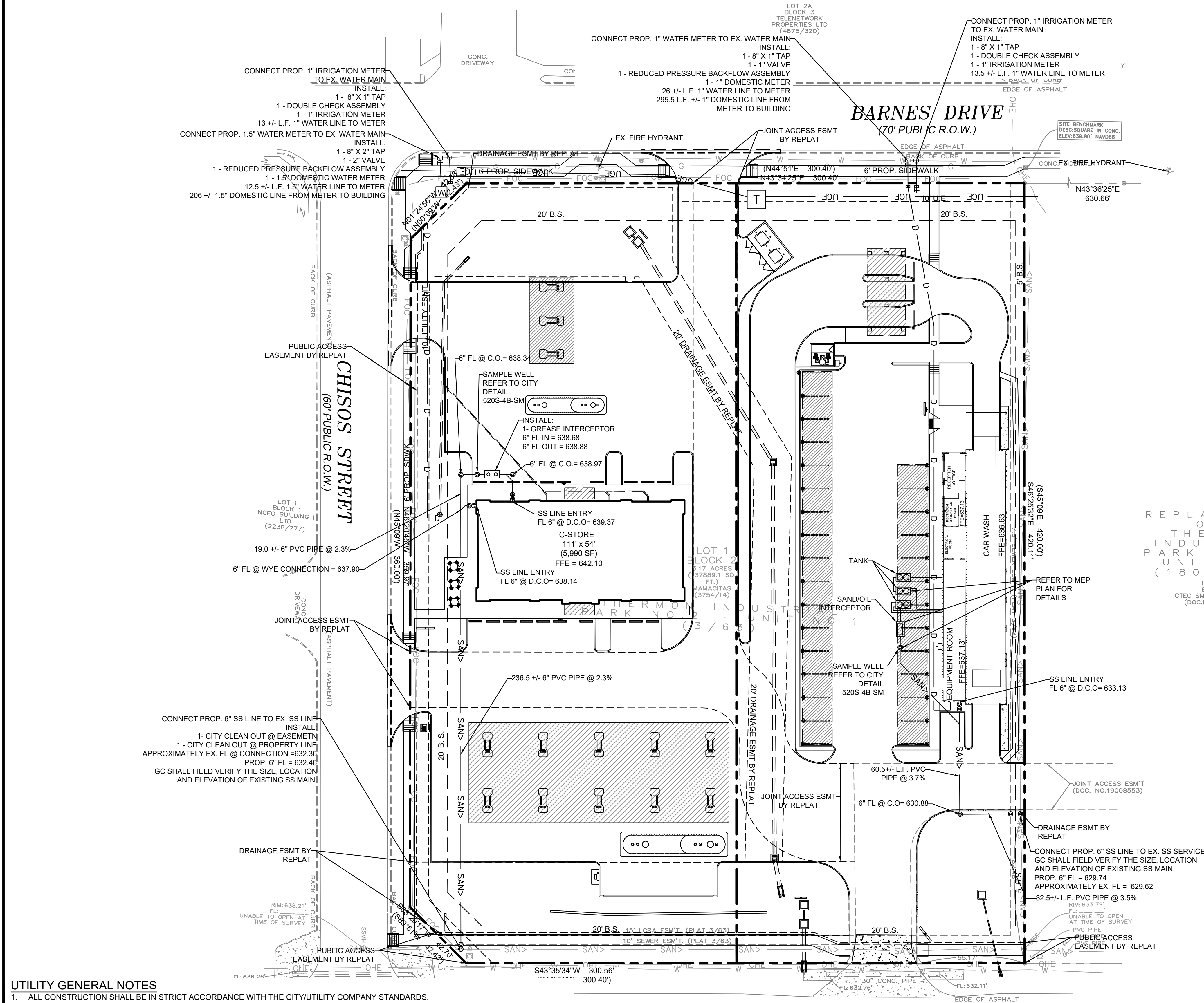
UTILITY PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SCALE BAR	103-20	C-9.0

TX. P.E. FIRM #11525



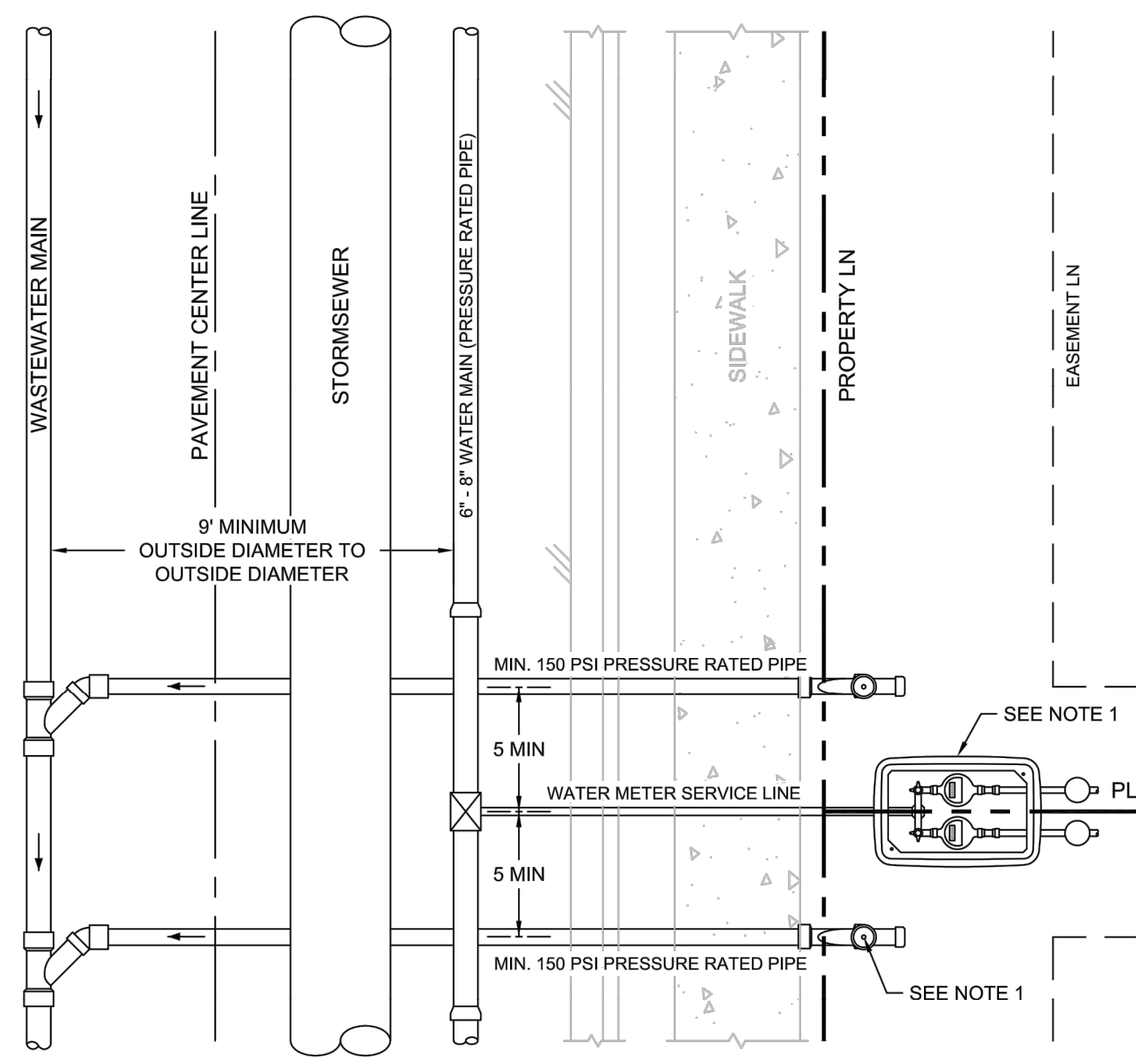
- UTILITY GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE CITY/UTILITY COMPANY STANDARDS.
 - FIELD VERIFY LOCATION OF EXISTING WATER MAIN, SEWER MAIN, GAS, TELEPHONE AND ELECTRICAL LINE. POT HOLE RECOMMENDED PRIOR TO CONSTRUCTION BEGIN. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH UTILITY SERVICE PROVIDERS.
 - THE LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS IS TAKEN FROM AS-BUILTS, UTILITY PLANS OR SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE OWNERS OF SUCH UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA TO CONFIRM THEIR EXACT LOCATION AND TO DETERMINE WHETHER ANY ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL UNDERGROUND UTILITIES. IF EXISTING UNDERGROUND UTILITIES ARE DAMAGED, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPAIRING THE UTILITY.
 - WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR THE UTILITIES OR SERVICE LINES WITH THE SAME TYPE OF ORIGINAL MATERIAL AND CONSTRUCTION, OR BETTER, UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS, AT HIS OWN COST AND EXPENSE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS WITH UTILITIES.
 - ALL EXCAVATIONS, TRENCHING AND SHORING OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE U. S. DEPARTMENT OF LABOR, OSHA, CONSTRUCTION SAFETY AND HEALTH REGULATIONS AND ANY AMENDMENTS THERETO.
 - THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES, FENCES, CULVERT PIPES, DRAINAGE DITCHES, DRIVEWAYS, PRIVATE YARDS AND ROADWAYS.
 - ANY CHANGES NEEDED AFTER CONSTRUCTION PLANS HAVE BEEN RELEASED, SHALL BE APPROVED BY THE CITY ENGINEER. THESE CHANGES MUST BE RECEIVED IN WRITING.
 - THE CONTRACTOR SHALL PROVIDE "RED LINED" MARKED PRINTS TO THE ENGINEER PRIOR TO FINAL INSPECTION INDICATING ALL CONSTRUCTION WHICH DEVIATED FROM THE PLANS OR WAS CONSTRUCTED IN ADDITION TO THAT INDICATED ON THE PLANS.

IH 35 FRONTAGE
SOUTHBOUND (ASPHALT PAVEMENT)

IH 35
(300' PUBLIC R.O.W.)

- NOTES:**
- CHECK VALVES TO BE USED AS NEEDED TO PREVENT LOW-HEAD DRAINAGE.
 - PVC PIPE TO BE SIZED SUCH THAT FLOWS WILL NOT EXCEED VELOCITY OF 5 FPS.
 - PVC PIPE JOINS TO BE PRIMED 2. COLORED PREMER BEFORE APPLYING PVC CEMENT.



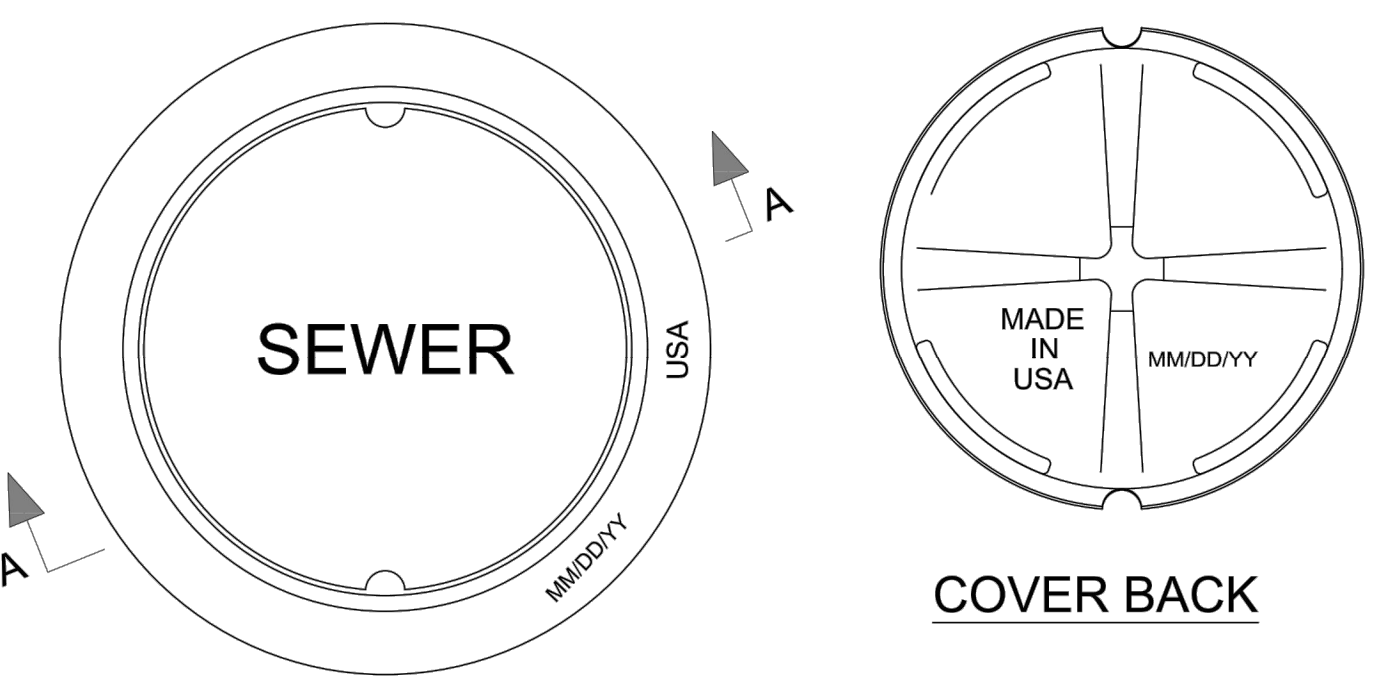


MINIMUM SEPARATION REQUIREMENT OF SERVICES
N.T.S.

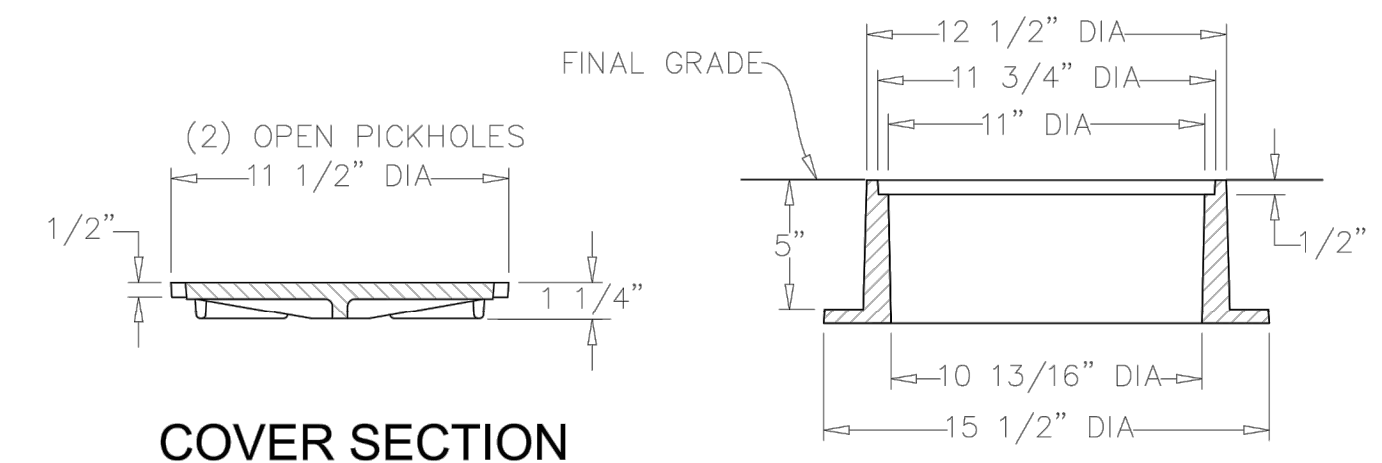
NOTES:
1. FOR WATER METER AND WASTEWATER CLEANOUT SEE STANDARD DETAILS 520S-1-SM & 520S-9-SM.
2. THE DETAIL ABOVE SHOWS MINIMUM SEPARATION REQUIREMENTS FOR A TYPICAL SUBDIVISION.

REFERENCES
DETAIL 520S-9-SM
DETAIL 520S-1-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WATER SERVICE & WASTEWATER SERVICE CONNECTION AT SAME LOT LINE	STANDARD NO. 520-AW-01A-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	6/1/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 1



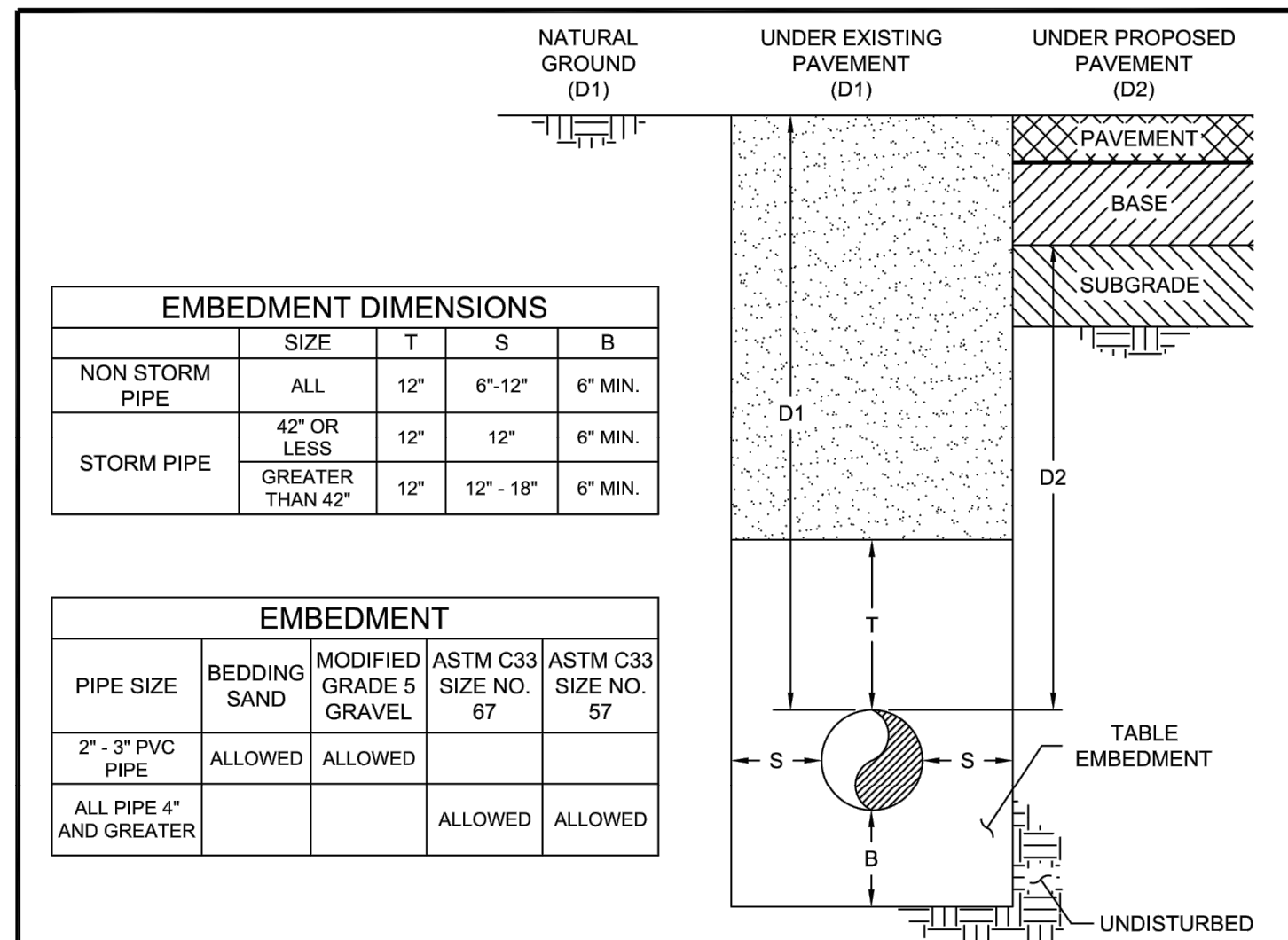
PLAN VIEW
COVER BACK



COVER SECTION
SECTION A-A
RING SECTION
SECTION A-A

NOTES:
1. COVER SHALL BE EAST JORDAN IRON WORKS
OR APPROVED EQUIVALENT.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CLEANOUT RING AND COVER	STANDARD NO. 503S-7W-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	6/30/2014 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	N.T.S. STANDARD DETAIL



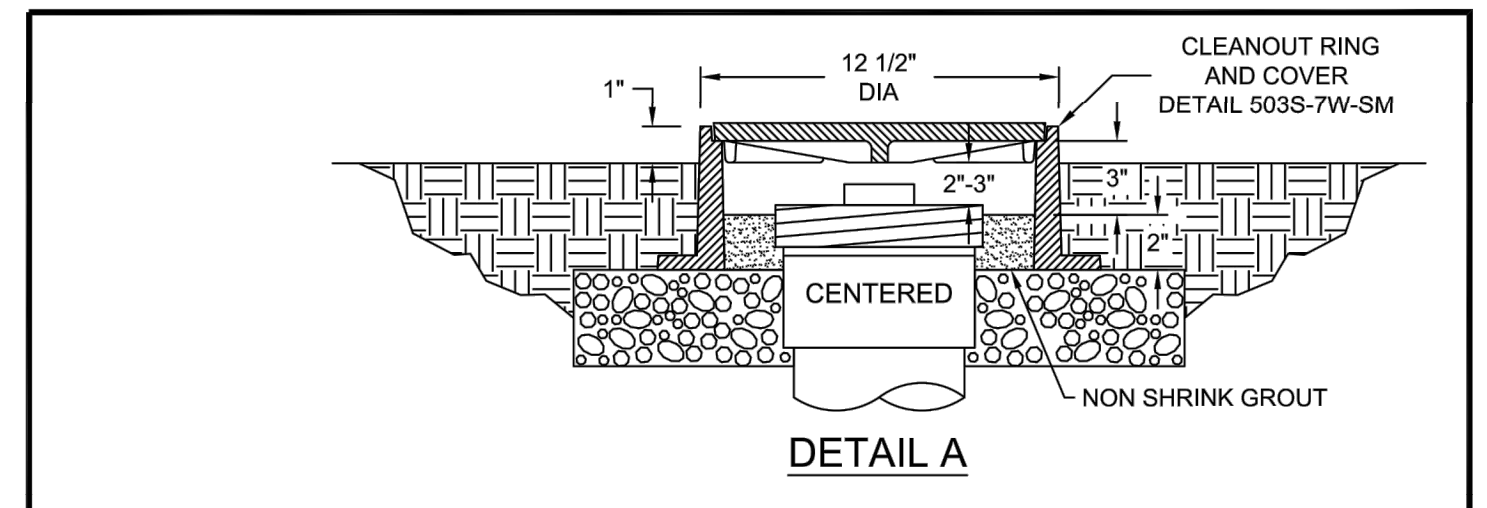
EMBEDMENT DIMENSIONS				
PIPE TYPE	SIZE	T	S	B
NON STORM PIPE	ALL	12"	6"-12"	6" MIN.
STORM PIPE	42" OR LESS	12"	12"	6" MIN.
	GREATER THAN 42"	12"	12" - 18"	6" MIN.

EMBEDMENT				
PIPE SIZE	BEDDING SAND	MODIFIED GRADE 5 GRAVEL	ASTM C33 SIZE NO. 67	ASTM C33 SIZE NO. 57
2" - 3" PVC PIPE	ALLOWED	ALLOWED		
ALL PIPE 4" AND GREATER			ALLOWED	ALLOWED

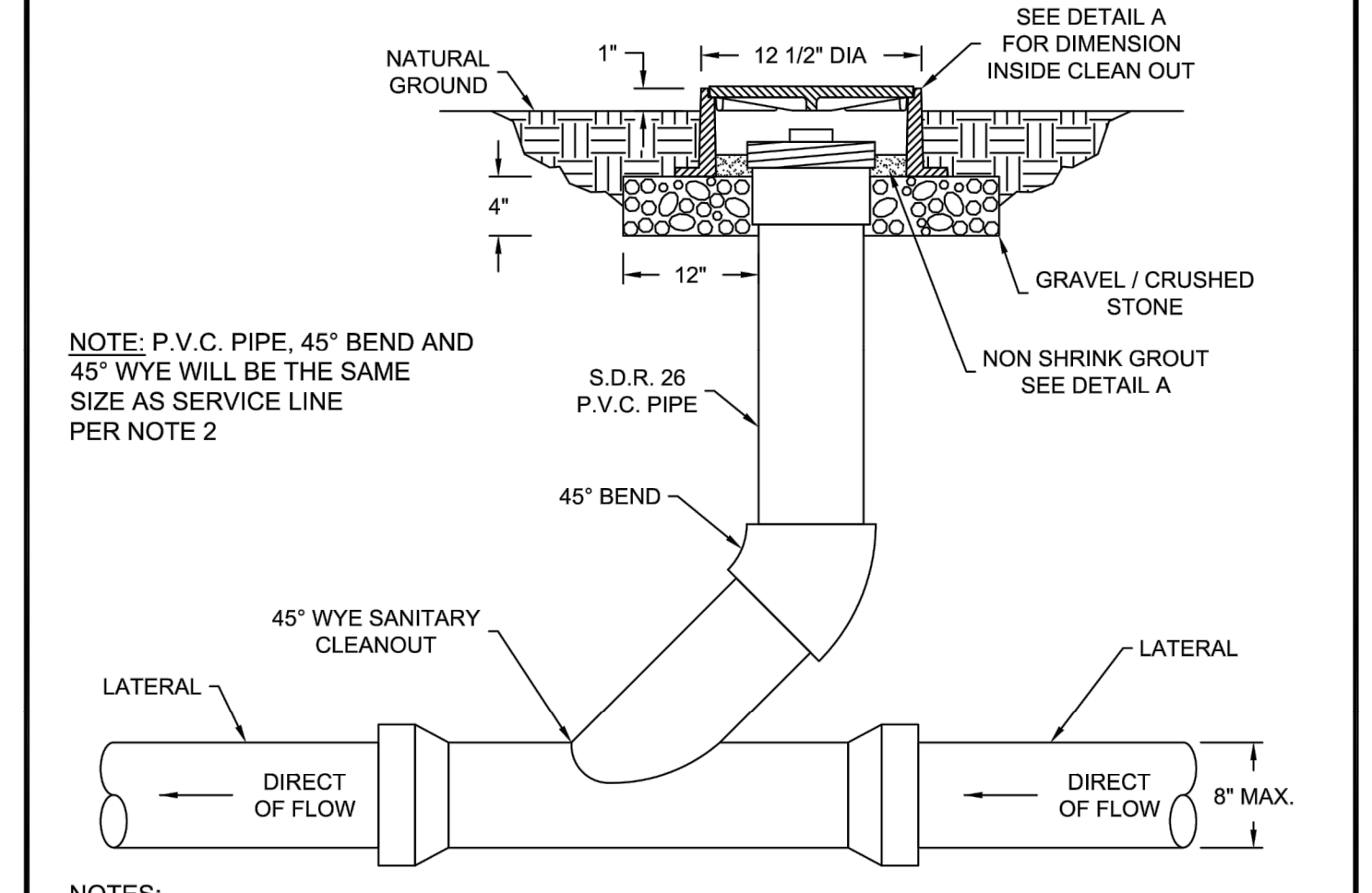
MINIMUM DEPTH OF COVER					
PIPE TYPE	SIZE	(D1) UNDER PAVEMENT	(D1) NATURAL GROUND	(D1) LESS THAN 3' OF COVER	(D2 - NOTE 2) UNDER PROPOSED ROAD
WATER	12" OR LESS	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL.	36" BELOW BASE
	18" OR GREATER	48" MIN.	48" MIN.	NOT ALLOWED	48" BELOW BASE
WASTEWATER	ALL	60" MIN.	36" MIN.	DUCTILE IRON WILL BE USED. FLOWABLE FILL DETAIL WHERE EROSION MAY OCCUR.	48" MIN. BELOW BASE
RECLAIMED WATER	ALL	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL.	36" MIN. BELOW BASE
STORM	ALL	MANUFACTURER'S SPECIFICATION MINIMUM AND MAXIMUM DEPTH OF COVER WILL BE USED FOR STORM PIPES			

NOTES:
1. ALL MEASUREMENTS ARE FROM OUTSIDE PIPE DIAMETER.
2. FOR TABLE "MINIMUM DEPTH OF COVER" COLUMN "UNDER PROPOSED ROAD" IF D1 FROM COLUMN "UNDER PAVEMENT" PLACES THE PIPE LOWER THAN D2, THEN D1 FROM "UNDER PAVEMENT" WILL BE USED FOR MINIMUM DEPTH OF COVER.
3. REFERENCE APPROPRIATE 510 PIPE TRENCH DETAILS FOR PAYMENT LIMITS. THIS DETAIL IS FOR DIMENSIONAL PURPOSES ONLY.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	UTILITY TRENCH DIMENSIONS	STANDARD NO. 510S-TD-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/23/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 1



DETAIL A

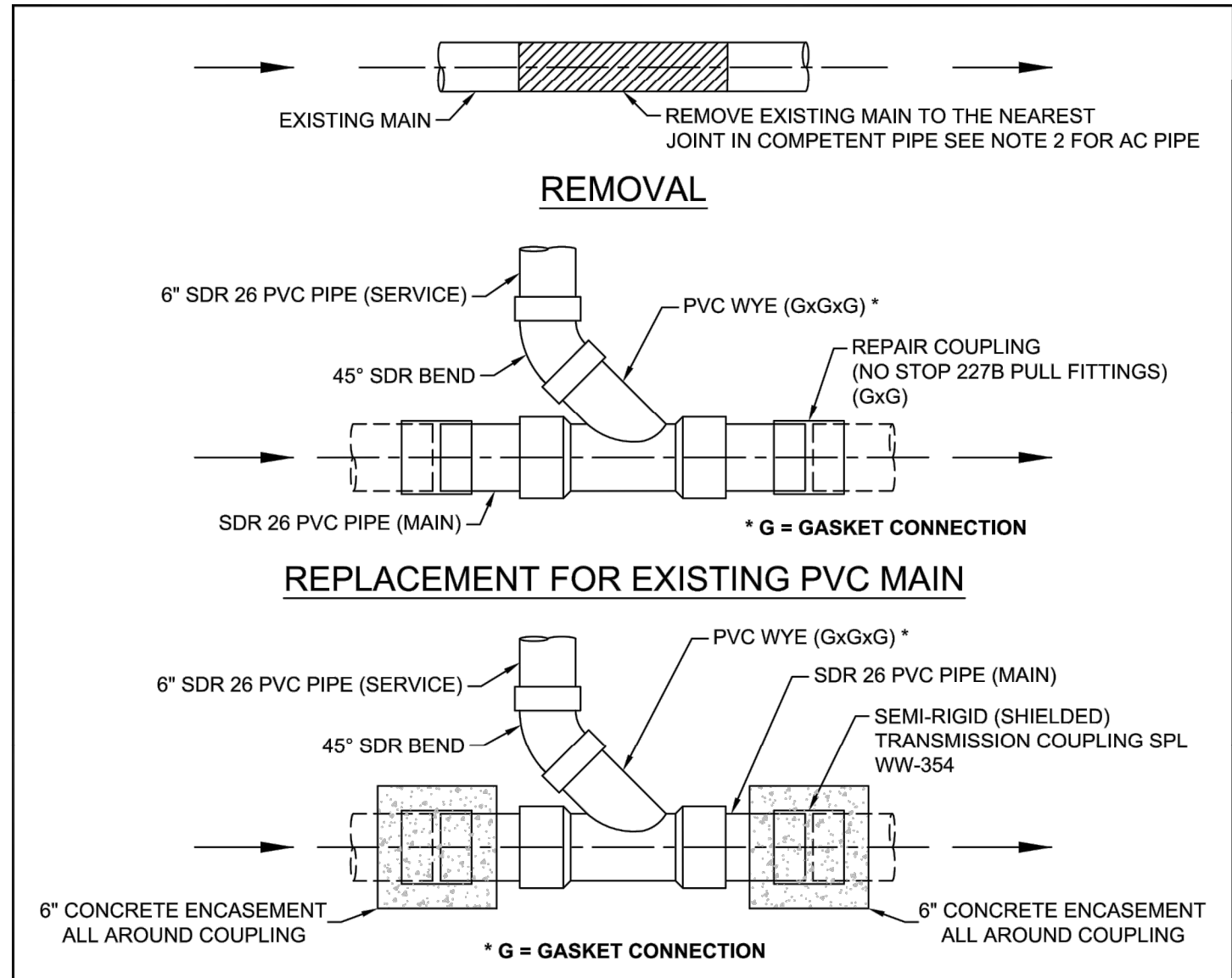


NOTE: P.V.C. PIPE, 45° BEND AND 45° WYE WILL BE THE SAME SIZE AS SERVICE LINE PER NOTE 2

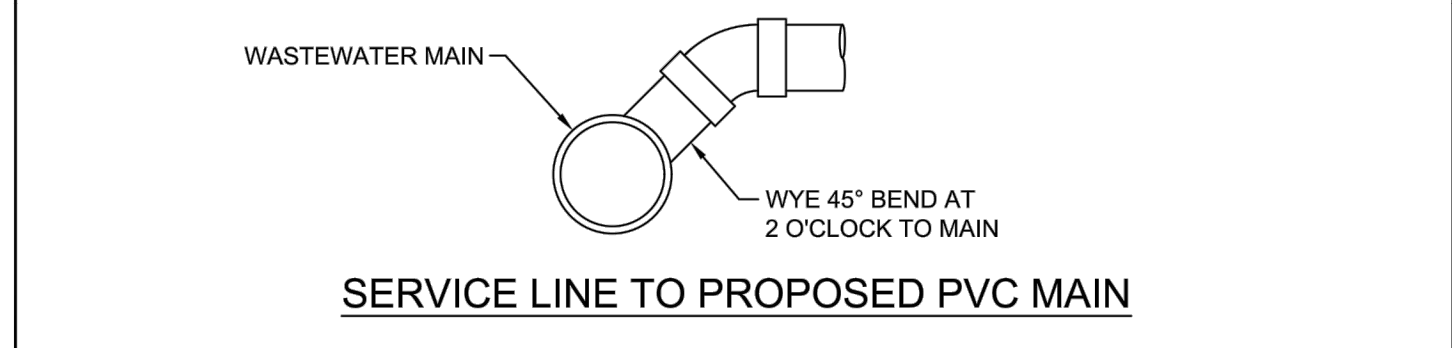
NOTES:
1. THIS DETAIL IS NOT FOR ANY LOCATION THAT WILL HAVE TRAFFIC LOADS.
2. THIS STANDARD IS ONLY FOR LATERALS 8" OR LESS AND ALL FITTING AND PIPE FOR CLEANOUT WILL BE THE SAME SIZE AS LATERAL.
3. TRENCH SHALL BE COMPACTED AND RESTORED AS PER STANDARD DETAIL 510S-S&L-SM.
4. CLEAN OUT WILL BE LOCATED IN R.O.W. OR WASTEWATER EASEMENT.

REFERENCES
DETAIL 503S-7W-SM
DETAIL 510S-S&L-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WASTEWATER CLEANOUT	STANDARD NO. 520S-4A-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	6/2/2017 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 1



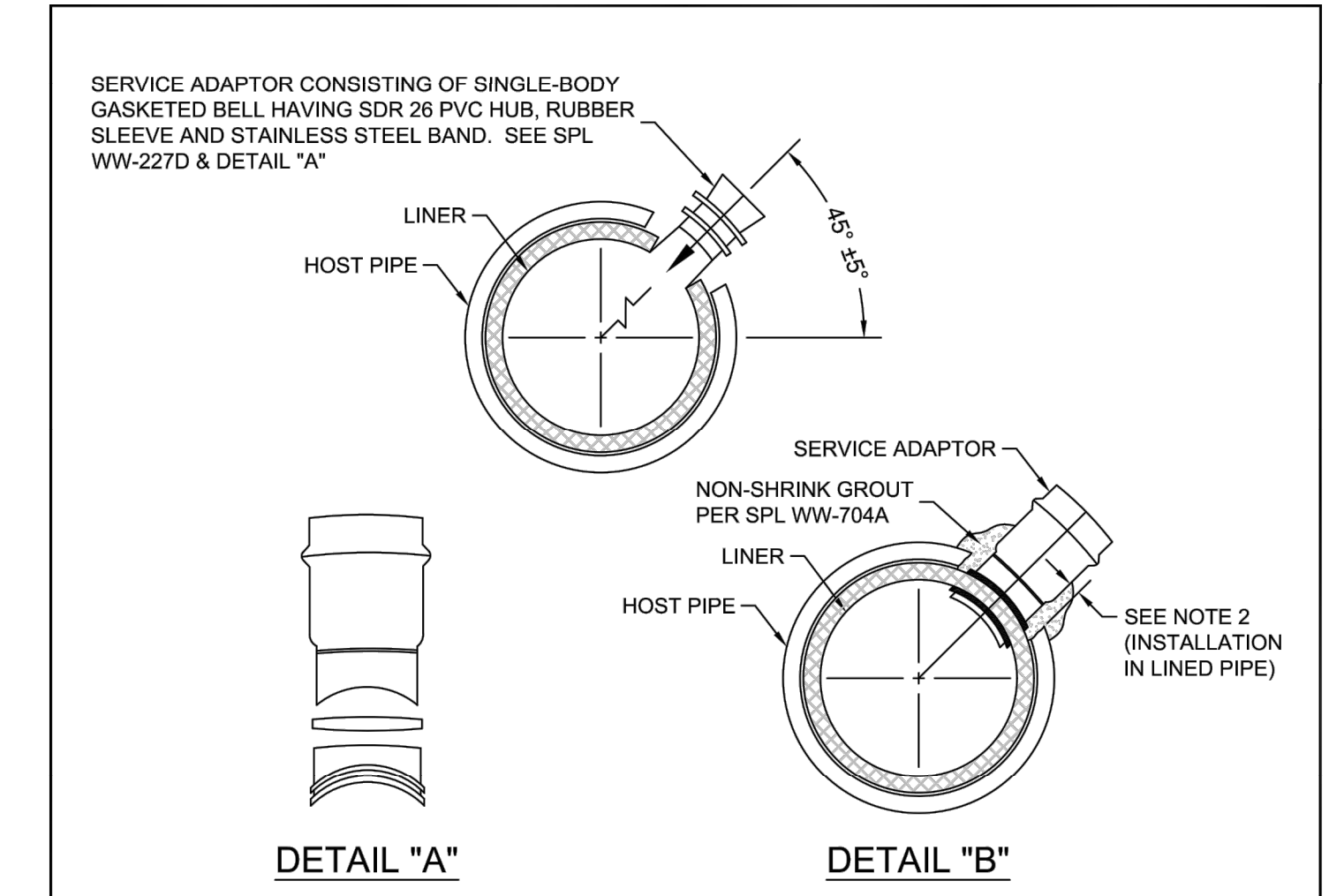
REPLACEMENT FOR EXISTING CONCRETE, CLAY, AND AC MAIN



SERVICE LINE TO PROPOSED PVC MAIN

NOTES:
1. ALL 45° BENDS AND SANITARY WYE'S WILL BE ROTATED TO WHERE THE BRANCH IS AT 2 O'CLOCK TO THE MAIN. BACKFILL PER 510S-S&L-SM.
2. AC PIPE HAS TO BE REMOVED TO THE NEAREST JOINT BEYOND COMPETENT PIPE.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WASTEWATER CONNECTION ON EXISTING MAIN	STANDARD NO. 520-AW-01B-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 2



DETAIL "A"
DETAIL "B"

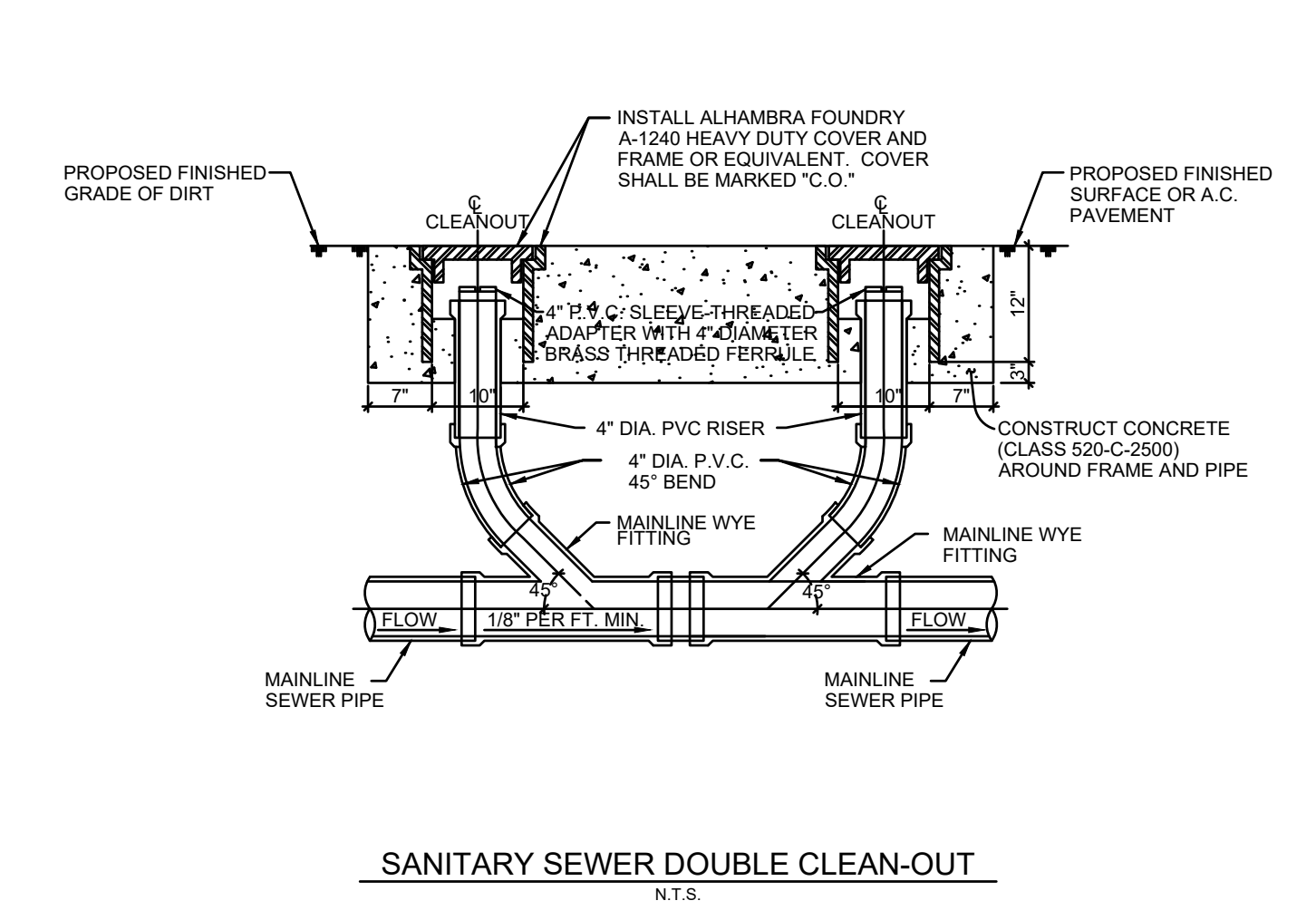
INSTALLATION IN LINED PIPE:
1. MARK LOCATION OF TAP.
2. BREAK & REMOVE HOST PIPE SO THAT OPENING IS AT LEAST 2" BUT NO MORE THAN 3" WIDER THAN DIAMETER OF THE SERVICE ADAPTOR.
3. DO NOT DAMAGE LINER.
4. CORE HOLE THROUGH LINER USING ADAPTOR MANUFACTURER RECOMMENDED BIT.
5. INSTALL SERVICE ADAPTOR.
6. HOLES CUT IN HOST PIPE SHALL BE PACKED WITH NON-SHRINK GROUT (SPL WW-704A). SEE DETAIL "B"

NOTES:
1. USE ONLY TO TAP EXISTING LINED PIPE OR EXISTING TRANSITION MAIN.
2. THE EDGE OF THE CORE HOLE MUST BE AT LEAST 3" FROM THE ENDS OF THE PIPE, ANY OTHER CORE SERVICE CONNECTIONS, AND ANY FITTINGS.

6" WASTEWATER CONNECTION TO EXISTING LINED MAIN OR EXISTING TRUNK MAIN

REFERENCES
DETAIL 510S-S&L-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WASTEWATER CONNECTION ON EXISTING MAIN	STANDARD NO. 520-AW-01B-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	2 OF 2



SANITARY SEWER DOUBLE CLEAN-OUT
N.T.S.

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



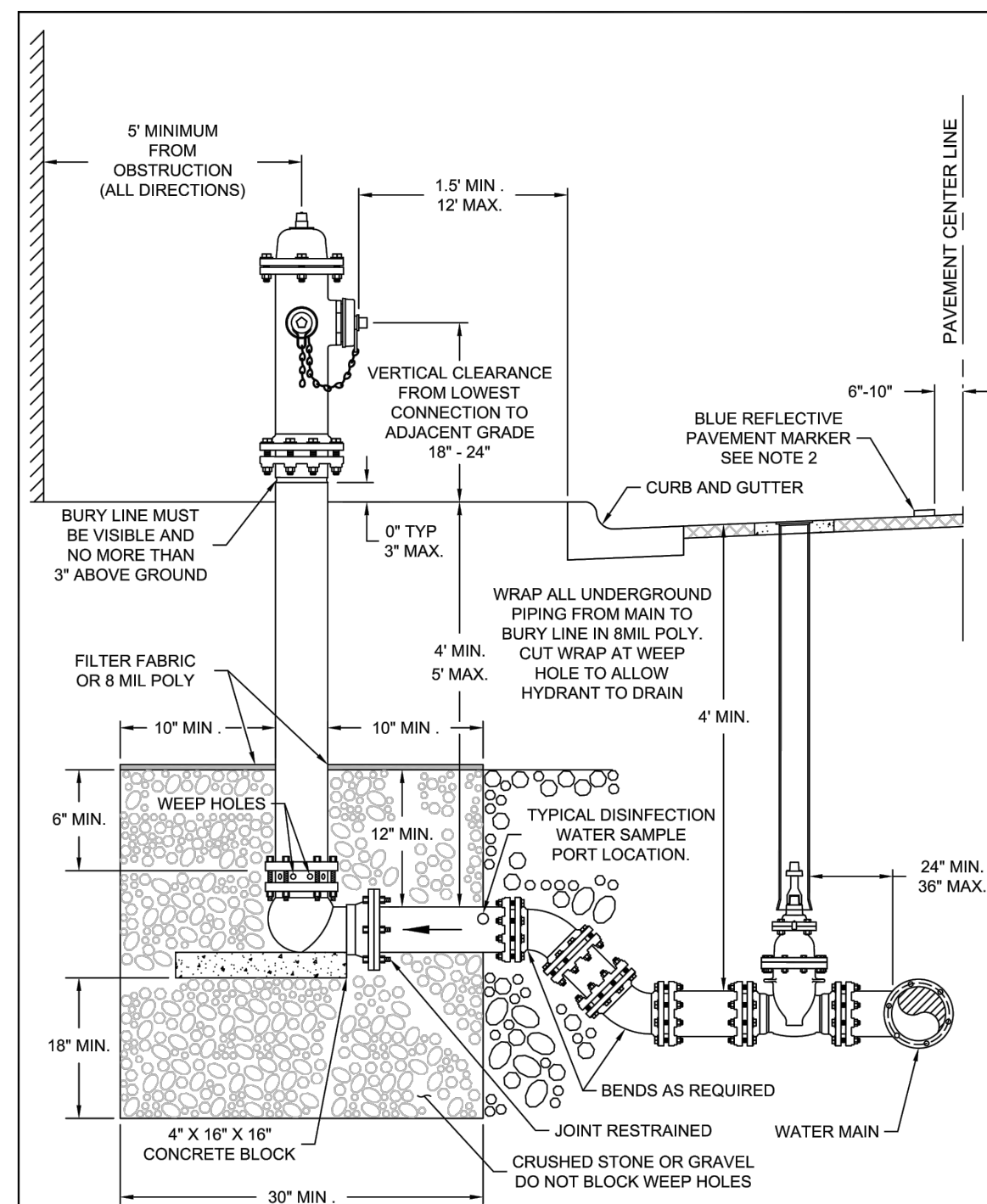
UTILITY DETAILS-WASTEWATER
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

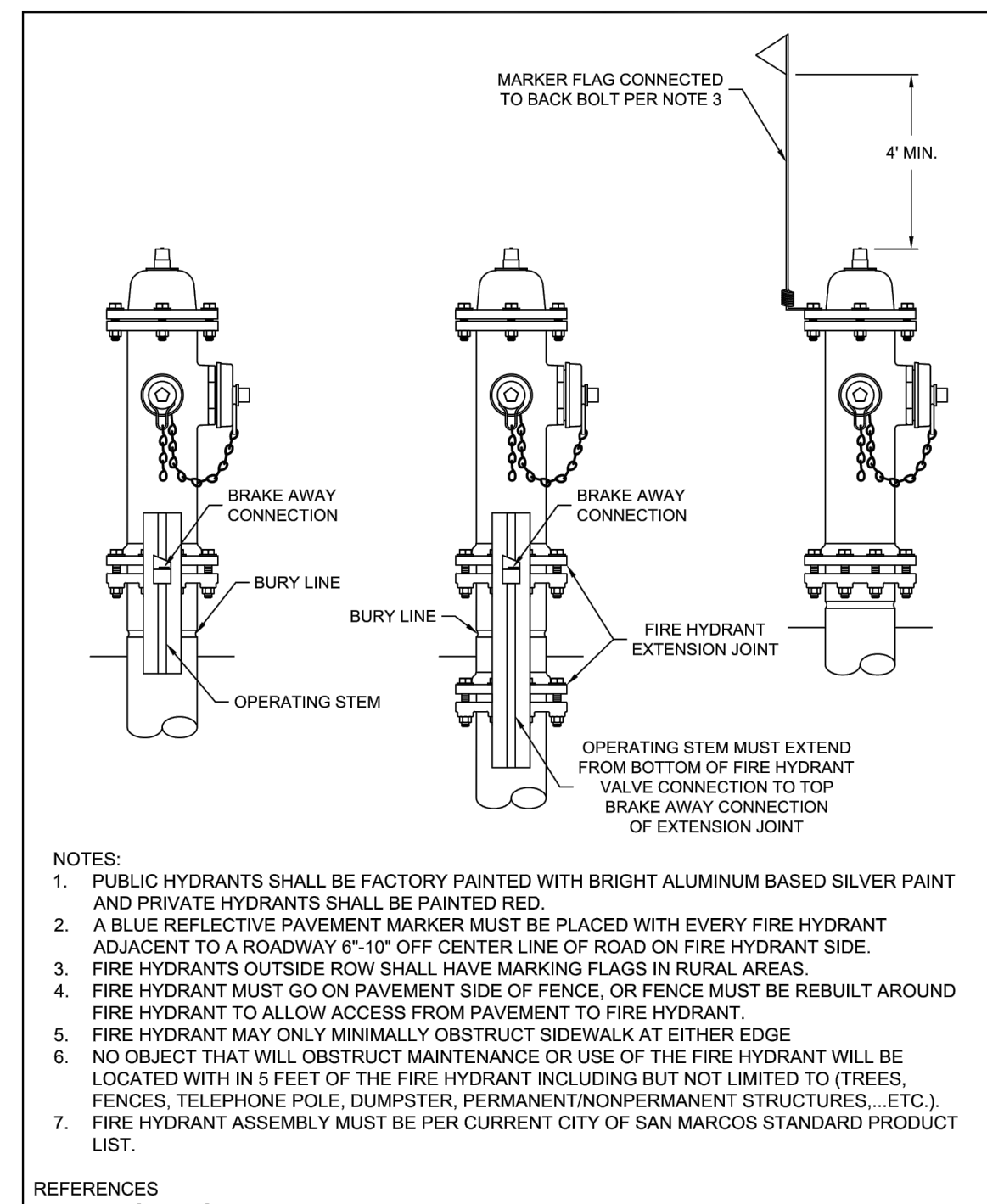
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SCALE BAR	103-20	C-9.1

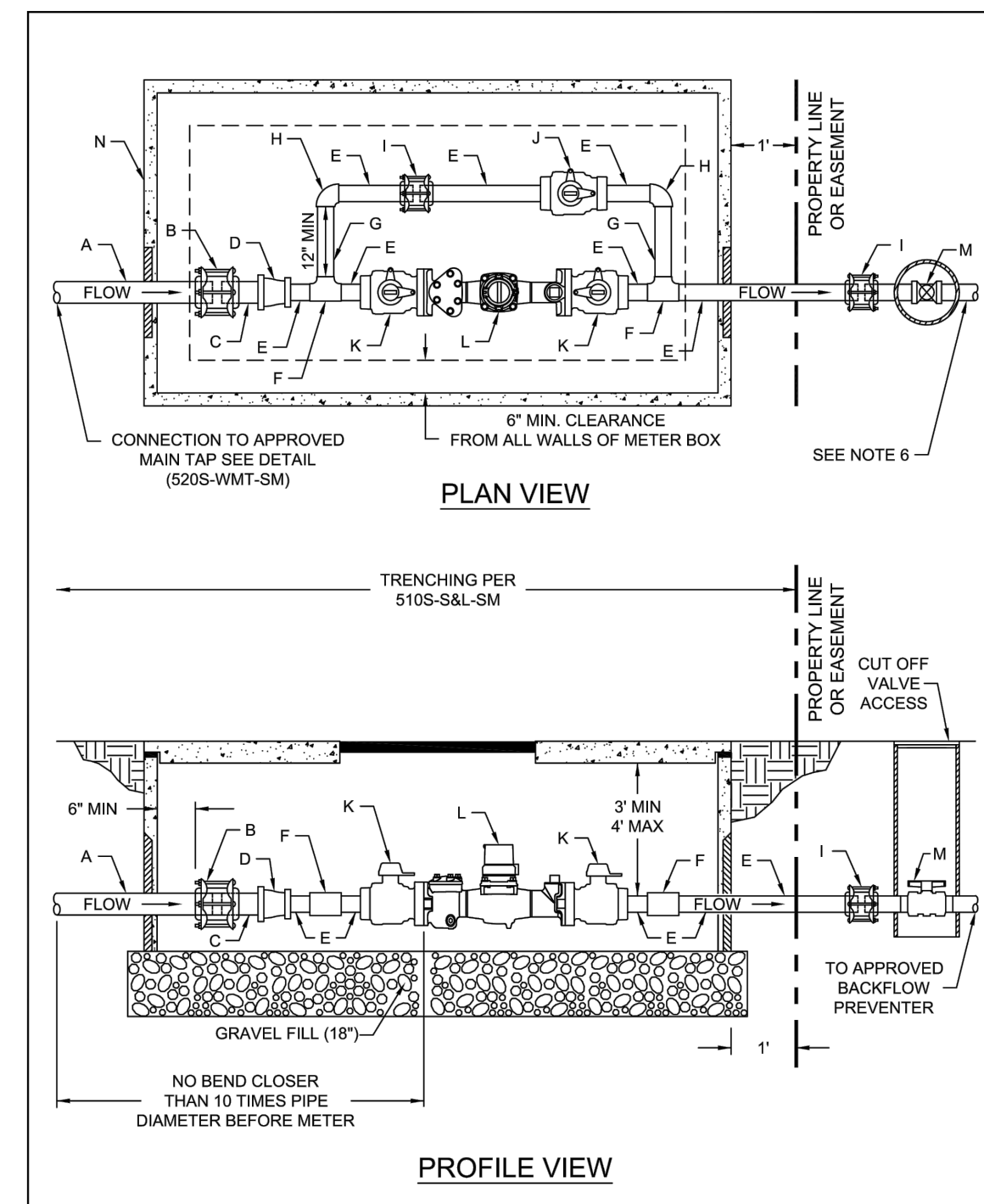
TX. P.E. FIRM #11525



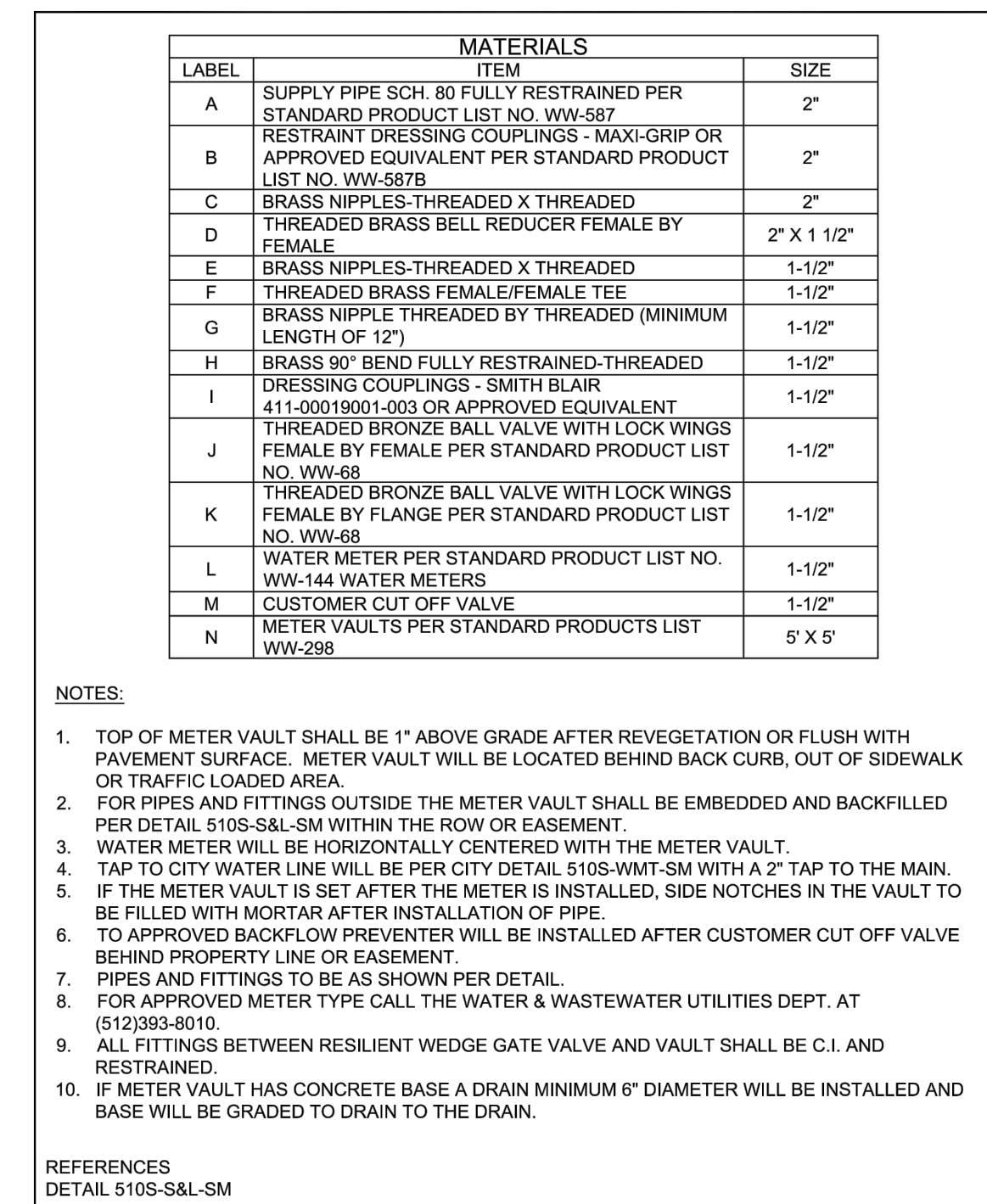
The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	STANDARD FIRE HYDRANT	
RECORD COPY SIGNED BY	2/15/2019	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	511-17-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 2	



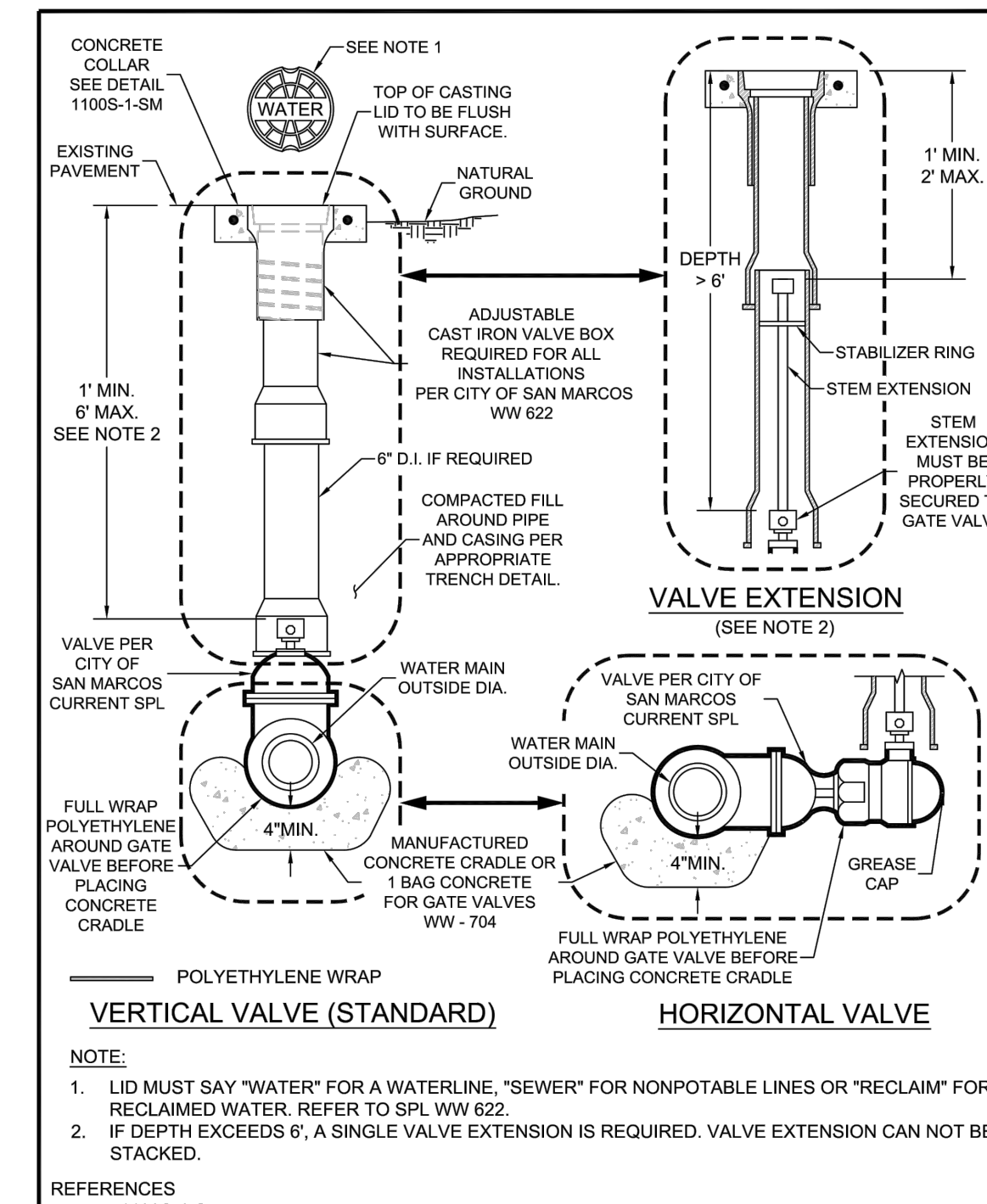
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RECORD COPY SIGNED BY	2/15/2019	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	511-17-SM
Laurie Moyer, P.E.	ADOPTED		2 OF 2	



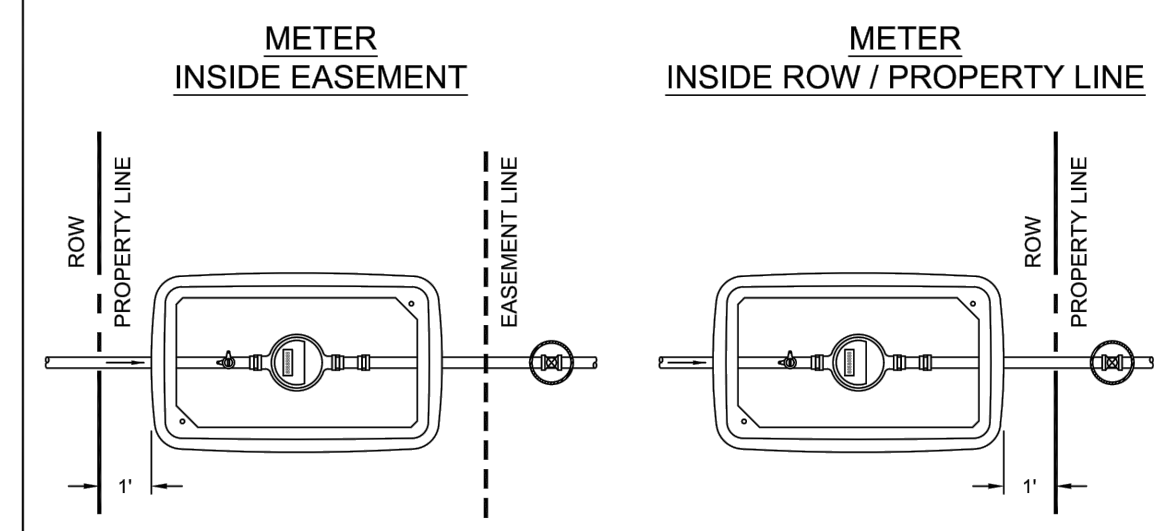
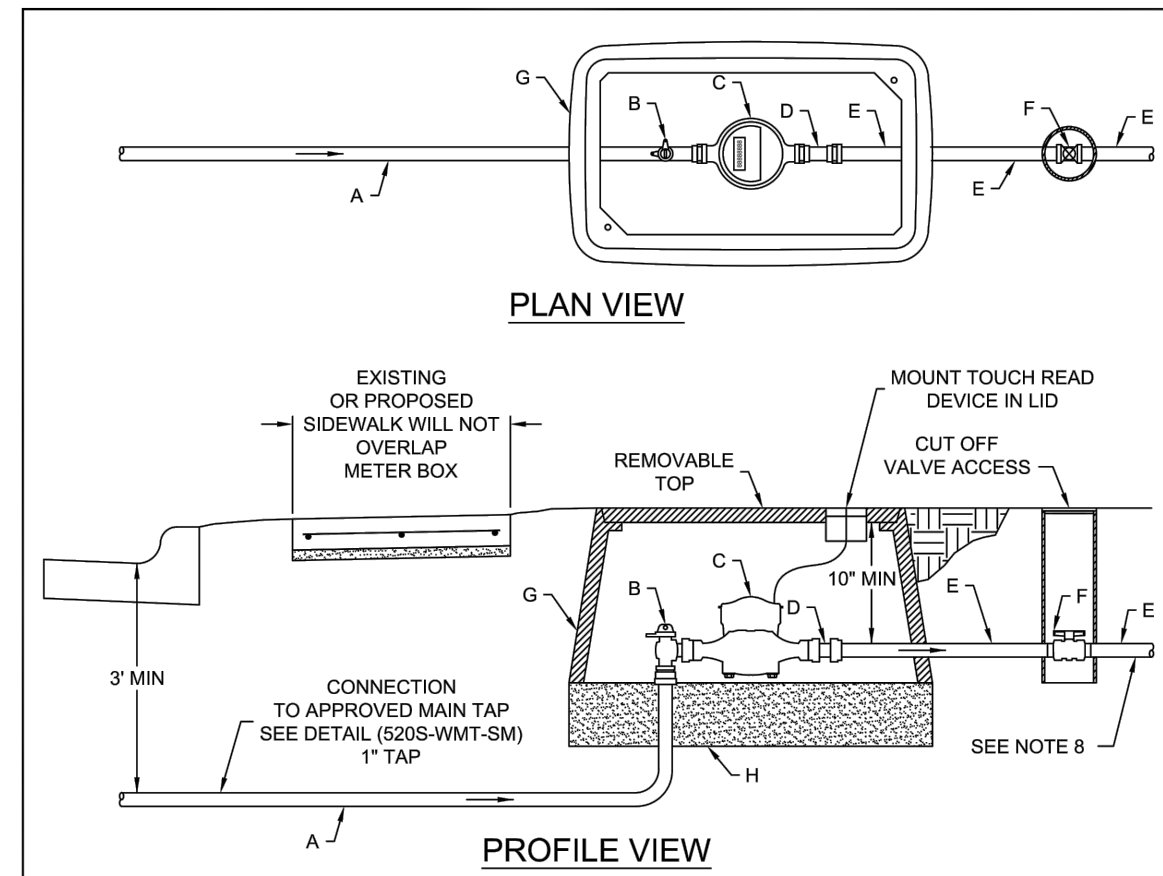
The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	1.5\"/>	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-13.3-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 2	



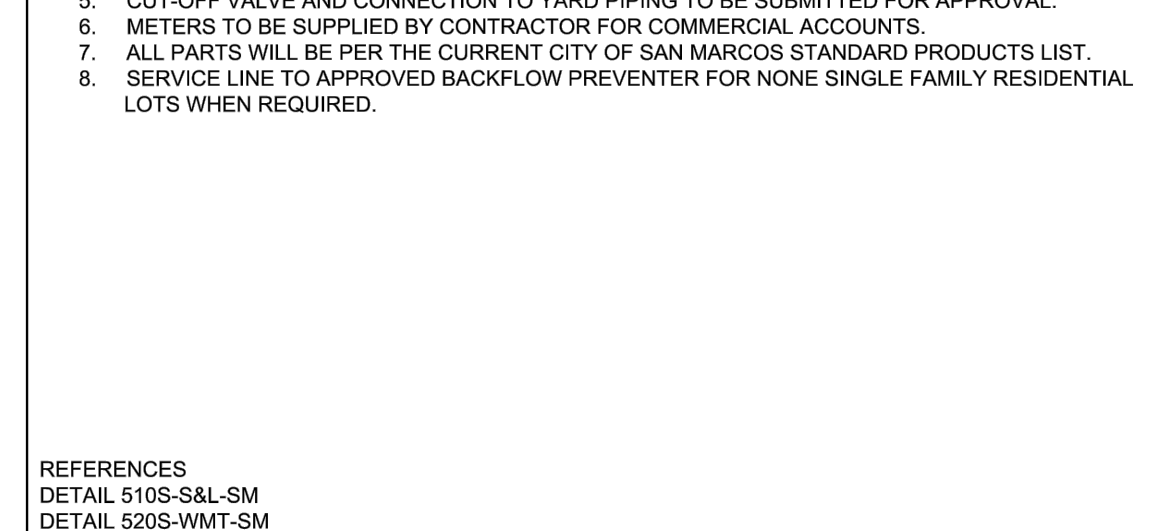
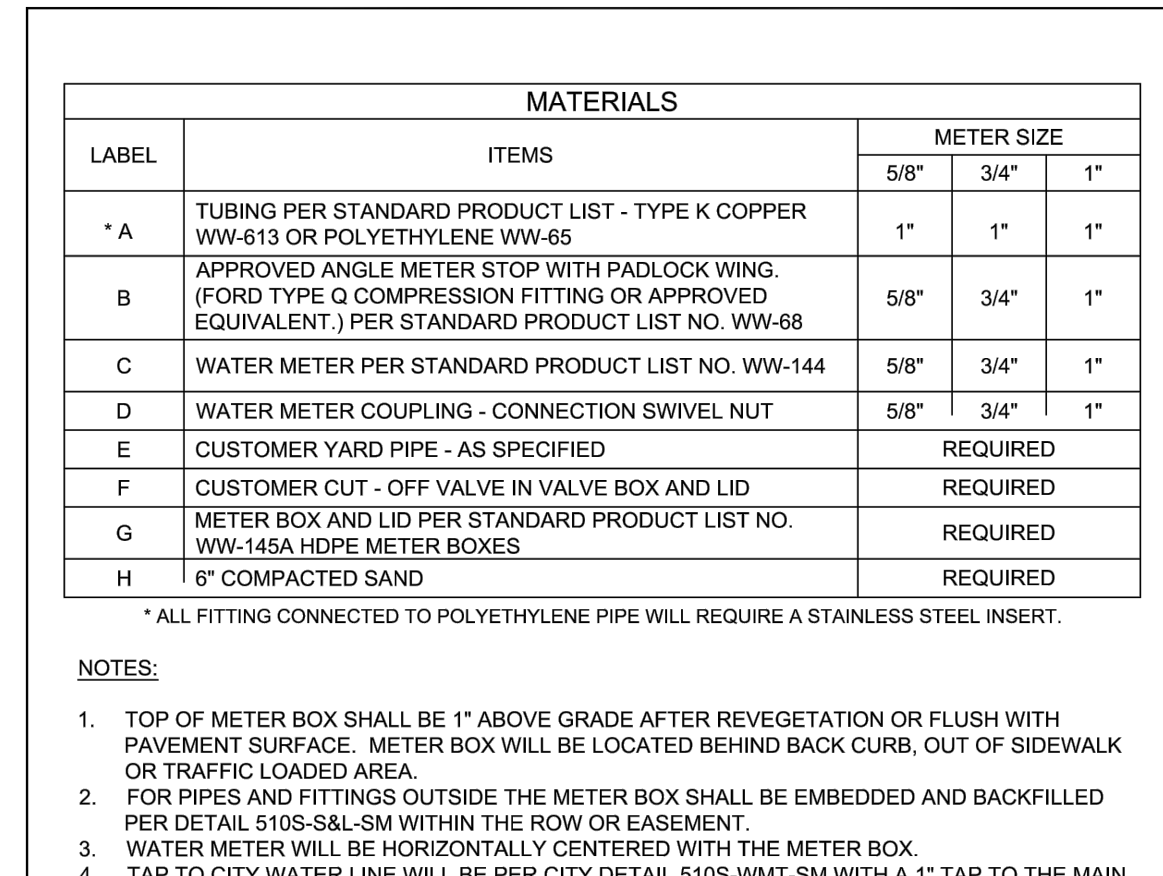
The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	1.5\"/>	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-13.3-SM
Laurie Moyer, P.E.	ADOPTED		2 OF 2	



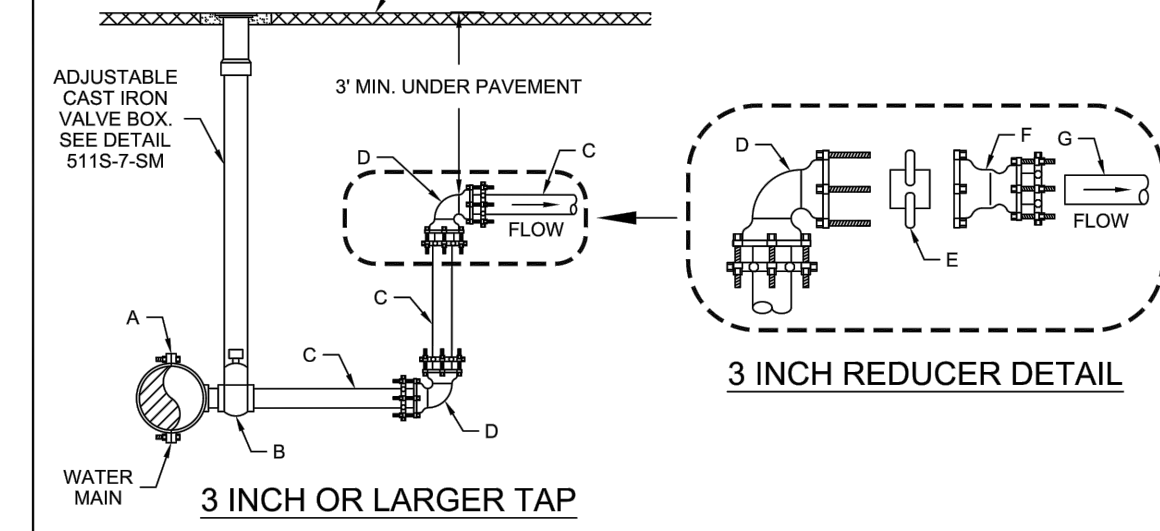
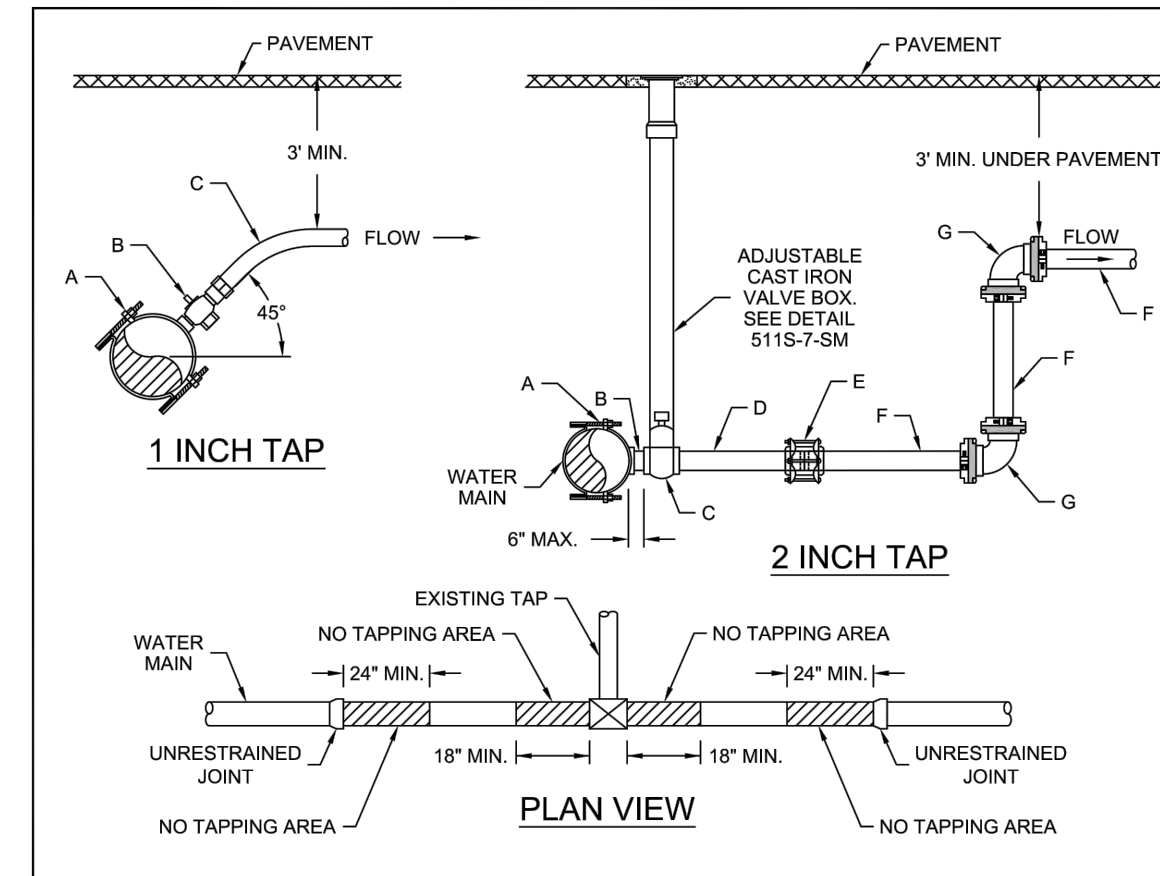
The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	TYPICAL GATE VALVE 2\"/>	
RECORD COPY SIGNED BY	2/15/2019	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	511S-7-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 1	



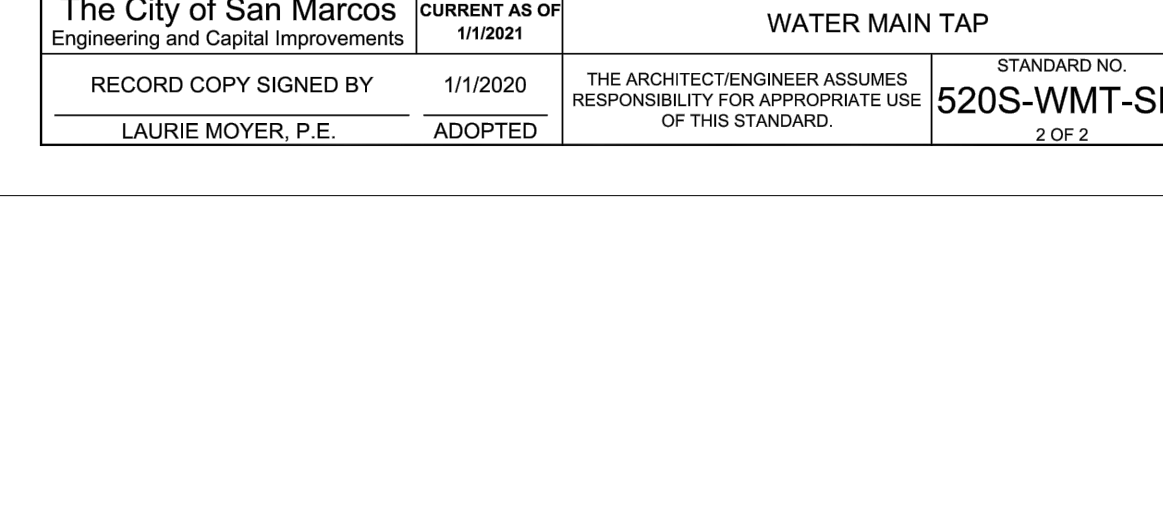
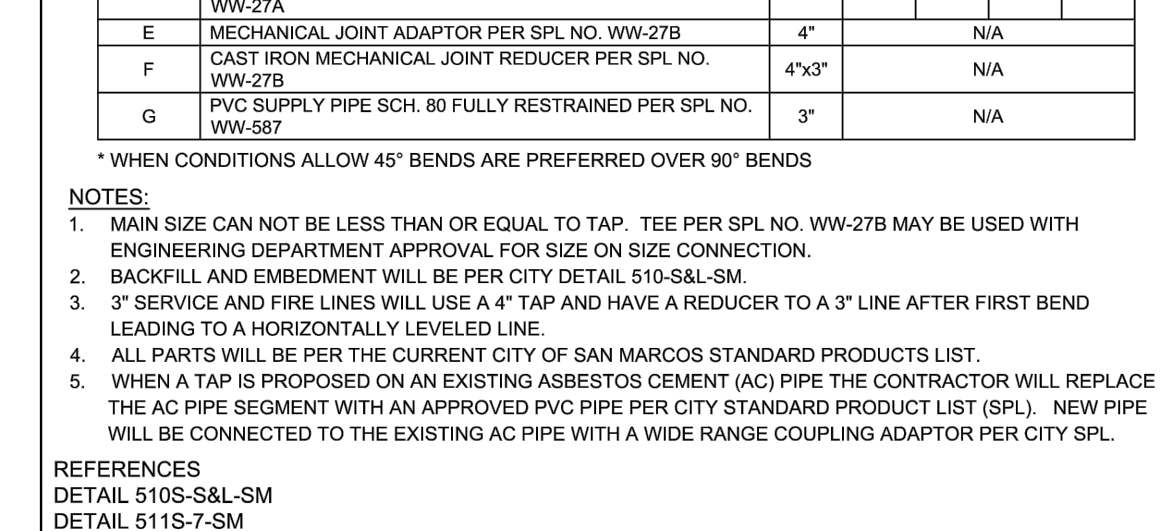
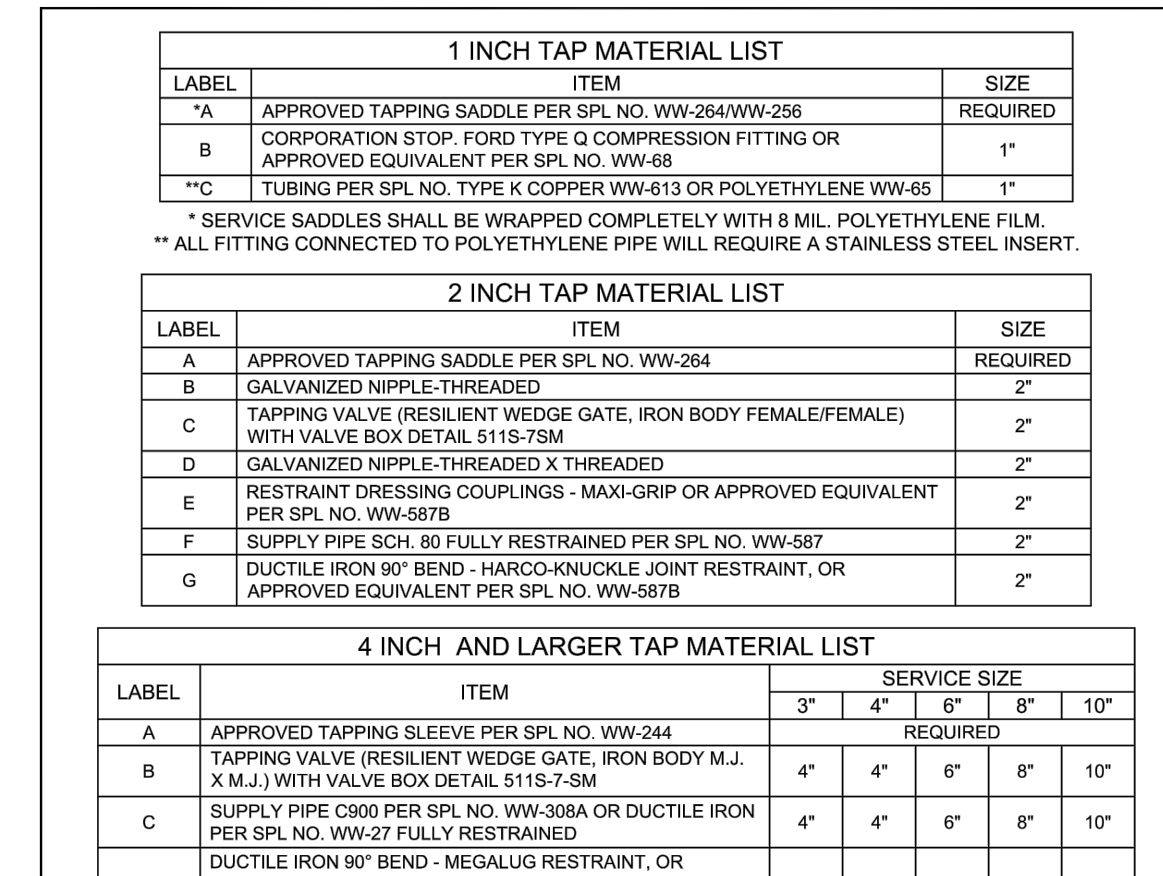
The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	5/8\", 3/4\"/>	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-11-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 2	



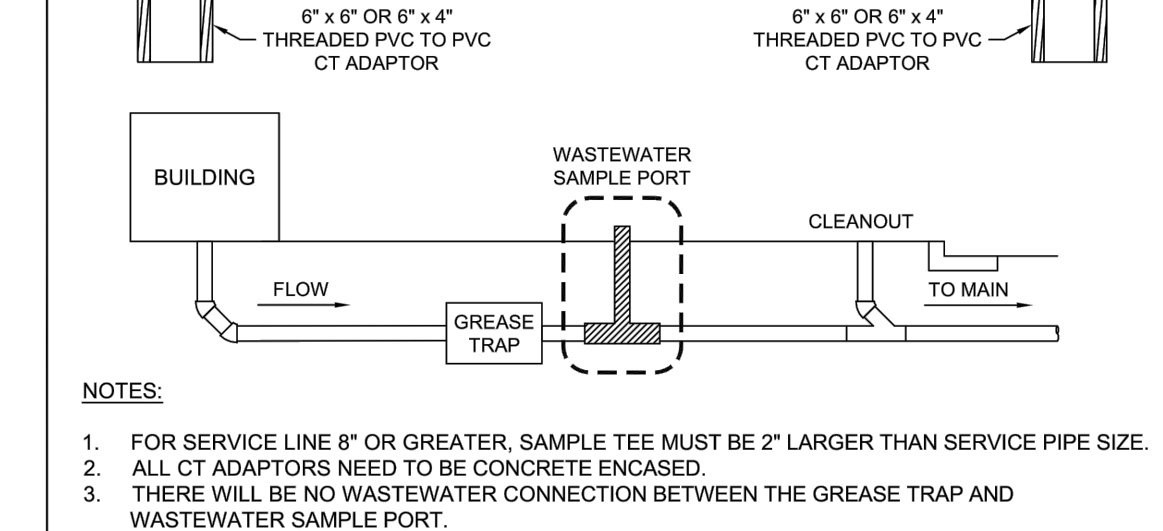
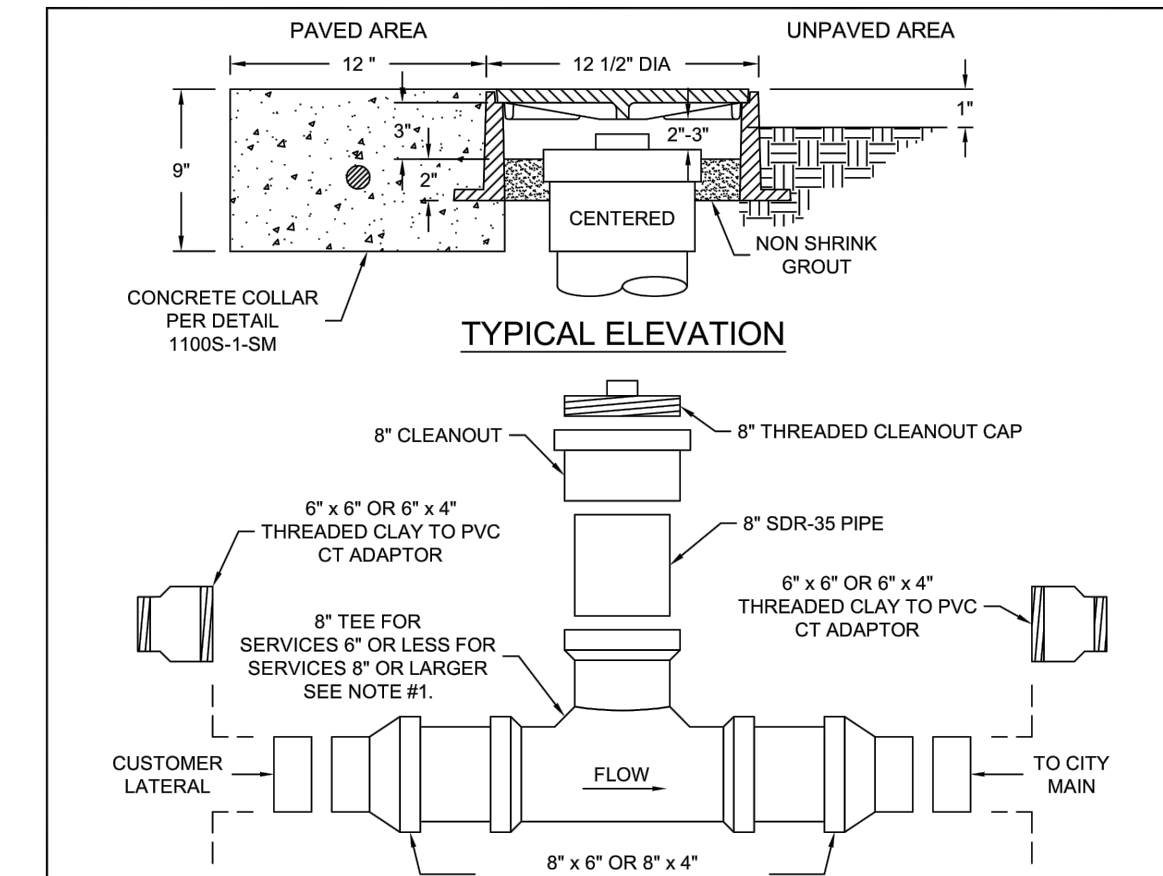
The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	5/8\", 3/4\"/>	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-11-SM
Laurie Moyer, P.E.	ADOPTED		2 OF 2	



The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	WATER MAIN TAP	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-WMT-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 2	



The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2021	WATER MAIN TAP	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-WMT-SM
Laurie Moyer, P.E.	ADOPTED		2 OF 2	



The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 6/2/2017	WASTEWATER SAMPLE PORT	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	520S-4B-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 1	

UTILITY DETAILS-WATER
CAR WASH & GAS STATION
 IH 35 & CHISOS
 CITY OF SAN MARCOS
 HAYS COUNTY, TEXAS 78666
 LOT 1, BLOK 2, THERMON INDUSTRIAL PARK

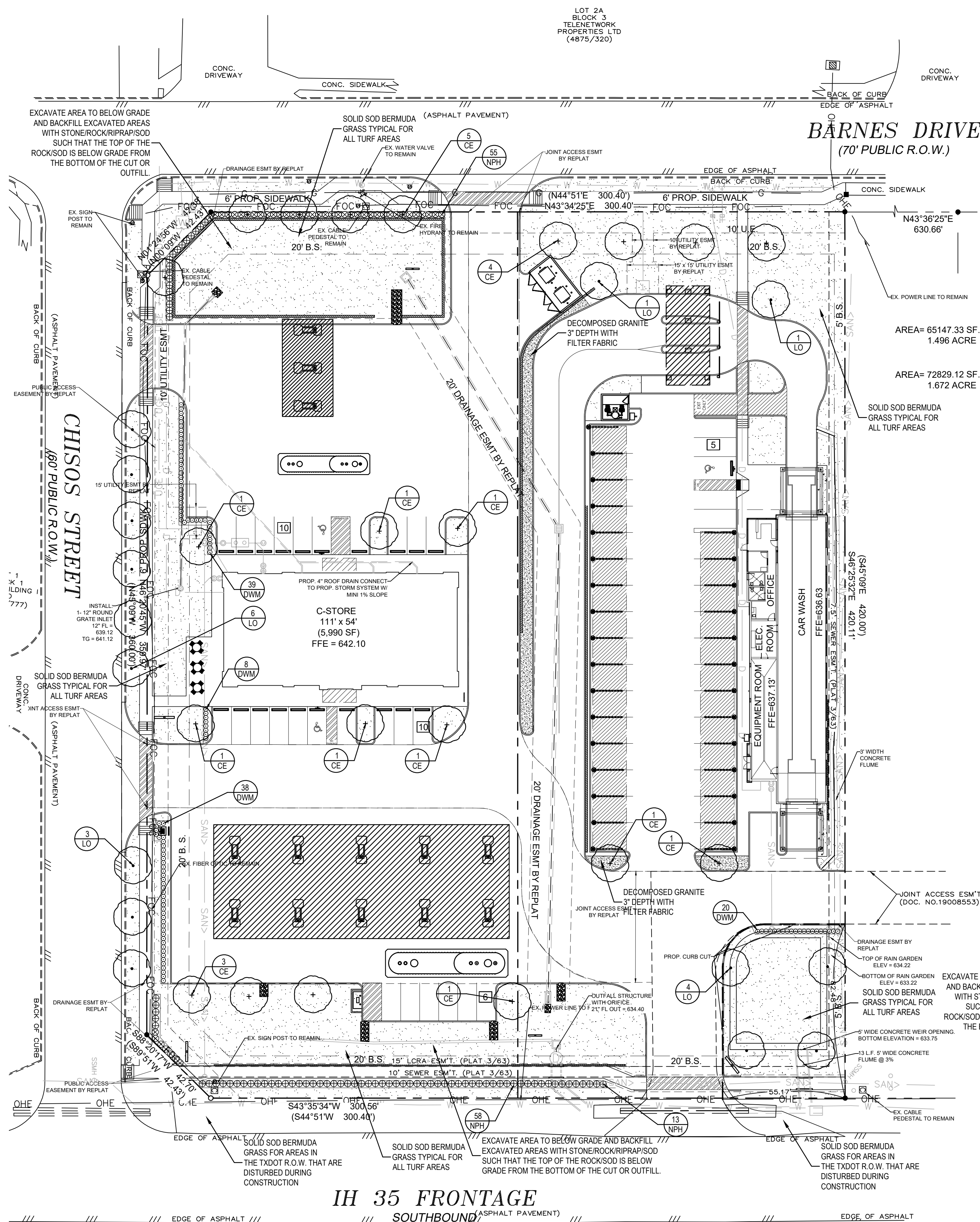
TRIANGLE ENGINEERING LLC
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 W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SCALE BAR	103-20	C-9.2

TX. P.E. FIRM #11525

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WPP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



REPLANT
THE
INDUSTRIAL
PARKING
UNIT
(18010)

GENERAL LAWN NOTES

1. FINE GRADE AREAS TO ACHIEVE FINAL CONTOURS INDICATED ON CIVIL PLANS.
2. ADJUST CONTOURS TO ACHIEVE POSITIVE DRAINAGE AWAY FROM BUILDINGS. PROVIDE UNIFORM ROUNDING AT TOP AND BOTTOM OF SLOPES AND OTHER BREAKS IN GRADE. CORRECT IRREGULARITIES AND AREAS WHERE WATER MAY STAND.
3. ALL LAWN AREAS TO RECEIVE SOLID SOD SHALL BE LEFT IN A MAXIMUM OF 1" BELOW FINAL FINISH GRADE. CONTRACTOR TO COORDINATE OPERATIONS WITH ON-SITE CONSTRUCTION MANAGER.
4. IMPORTED TOPSOIL SHALL BE NATURAL, FRIABLE SOIL FROM THE REGION, KNOWN AS BOTTOM AND SOIL, FREE FROM LUMPS, CLAY, TOXIC SUBSTANCES, ROOTS, DEBRIS, VEGETATION, STONES, CONTAINING NO SALT AND BLACK TO BROWN IN COLOR.
5. ALL LAWN AREAS TO BE FINE GRADED, IRRIGATION TRENCHES COMPLETELY SETTLED, AND FINISH GRADE APPROVED BY THE OWNER'S CONSTRUCTION MANAGER OR ARCHITECT PRIOR TO INSTALLATION.
6. ALL ROCKS 3/4" DIAMETER AND LARGER, DIRT CLODS, STICKS, CONCRETE SPOILS, ETC. SHALL BE REMOVED PRIOR TO PLACING TOPSOIL AND ANY LAWN INSTALLATION.
7. CONTRACTOR SHALL PROVIDE (1") ONE INCH OF IMPORTED TOPSOIL ON ALL AREAS TO RECEIVE LAWN.

LANDSCAPE TABULATIONS: C-STORE

REQUIREMENT: 10% OF THE SITE AREA TO BE LANDSCAPE. ONE TREE AND THREE SHRUBS REQUIRED PER 1,000 S.F. OF REQUIRED LANDSCAPE AREA. (SITE AREA 72,828 S.F.)

REQUIRED	PROVIDED
7,282 S.F.	21,238 S.F.
7- TREES	25- TREES
22- SHRUBS	213- SHRUBS

STREET TREES- 1 TREE PER 40 L.F.

BARNES- 155 L.F.
REQUIRED
4- TREES

CHISOS- 420 L.F.
REQUIRED
10- TREES

IH 35- 175 L.F.
REQUIRED
4 TREES

LANDSCAPE NOTES

1. CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED SITE ELEMENTS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES. SURVEY DATA OF EXISTING CONDITIONS WAS SUPPLIED BY OTHERS.
2. CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES AND NOTIFY ARCHITECT OF ANY CONFLICTS. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING IN THE VICINITY OF UNDERGROUND UTILITIES.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED LANDSCAPE AND IRRIGATION PERMITS.
4. CONTRACTOR TO PROVIDE A MINIMUM 2% SLOPE AWAY FROM ALL STRUCTURES.
5. ALL PLANTING BEDS AND LAWN AREAS TO BE SEPARATED BY STEEL EDGING. NO STEEL TO BE INSTALLED ADJACENT TO SIDEWALKS OR CURBS.
6. ALL LANDSCAPE AREAS TO BE 100% IRRIGATED WITH AN UNDERGROUND AUTOMATIC IRRIGATION SYSTEM AND SHALL INCLUDE RAIN AND FREEZE SENSORS.
7. ALL LAWN AREAS TO BE SOLID SOD BERMUDAGRASS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

LANDSCAPE TABULATIONS: CAR WASH

REQUIREMENT: 10% OF THE SITE AREA TO BE LANDSCAPE. ONE TREE AND THREE SHRUBS REQUIRED PER 1,000 S.F. OF REQUIRED LANDSCAPE AREA. (SITE AREA 65,147 S.F.)

REQUIRED	PROVIDED
6,514 S.F.	20,049 S.F.
7- TREES	15- TREES
20- SHRUBS	83- SHRUBS

STREET TREES- 1 TREE PER 40 L.F.

BARNES- 155 L.F.
REQUIRED
4- TREES

IH 35- 155 L.F.
REQUIRED
4- TREES

PLANT MATERIAL SCHEDULE- C-STORE

TREES					
TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
CE	13	Cedar Elm	<i>Ulmus crassifolia</i>	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
LO	12	Live Oak	<i>Quercus virginiana</i>	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
SHRUBS					
TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
DWM	92	Dwarf Wax Myrtle	<i>Myrica pusilla</i>	5 gal.	container, 20" ht., 20" spread
NPH	121	Needlepoint Holly	<i>Ilex cornuta 'Needlepoint'</i>	5 gal.	container, 24" ht., 20" spread
GROUNDCOVERS					
TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
		'419' Bermudagrass	<i>Cynodon dactylon '419'</i>		solid sod refer to notes

NOTE: Plant list is an aid to bidders only. Contractor shall verify all quantities on plan. All heights and spreads are minimums. All plant material shall meet or exceed remarks as indicated. All trees to have straight trunks and be matching within varieties.

PLANT MATERIAL SCHEDULE- CAR WASH

TREES					
TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
CE	9	Cedar Elm	<i>Ulmus crassifolia</i>	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
LO	6	Live Oak	<i>Quercus virginiana</i>	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
SHRUBS					
TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
DWM	20	Dwarf Wax Myrtle	<i>Myrica pusilla</i>	5 gal.	container, 20" ht., 20" spread
NPH	63	Needlepoint Holly	<i>Ilex cornuta 'Needlepoint'</i>	5 gal.	container, 24" ht., 20" spread
GROUNDCOVERS					
TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
		'419' Bermudagrass	<i>Cynodon dactylon '419'</i>		solid sod refer to notes

NOTE: Plant list is an aid to bidders only. Contractor shall verify all quantities on plan. All heights and spreads are minimums. All plant material shall meet or exceed remarks as indicated. All trees to have straight trunks and be matching within varieties.

1. UNLESS PAVEMENT IS INSTALLED, STONE, ROCK RIPRAP, SOD OR ANOTHER TYPE OF FLOW DISSIPATION IS REQUIRED AT ALL CURB CUTS AND OTHER DISCHARGE POINTS, SURROUNDING ALL GRATE INLETS, AND UNDER ALL OPEN DOWNSPOUTS, RAIN CHAINS, ROOF DRAINS / LARGE DOWNSPOUTS NOZZELS (AKA COW TONGUES), ETC. DECOMPOSED GRANITE, PEA GRAVEL OR SMALLER, RUBBER OR LANDSCAPE MULCH, PINE BARK, PECAN SHELLS, WOOD CHIPS AND ANY OTHER MATERIAL THAT IS EASILY DISPLACED DURING RAIN EVENTS ARE NOT ALLOWED IN THESE LOCATIONS.

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01.10.2023

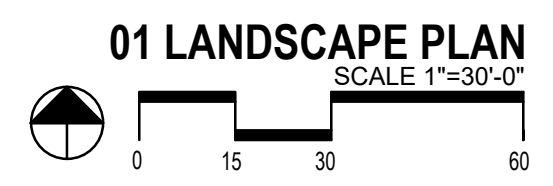
C-STORE & CARWASH
Chisos St & Barnes Dr
San Marcos, TX 78666

ISSUE:
FOR APPROVAL 02.12.2021
CITY COMMENTS 06.17.2021
CITY COMMENTS 10.27.2021
CITY COMMENTS 05.26.2022
CITY COMMENTS 01.10.2023

DATE:
01.10.2023

SHEET NAME:
LANDSCAPE PLAN

SHEET NUMBER:



01 LANDSCAPE PLAN
SCALE 1"=30'-0"

L.1

SECTION 02900 - LANDSCAPE

PART 1 - GENERAL

- 1.1 REFERENCED DOCUMENTS**
Refer to bidding requirements, special provisions, and schedules for additional requirements.
- 1.2 DESCRIPTION OF WORK**
Work included: Furnish all supervision, labor, materials, services, equipment and appliances required to complete the work covered in conjunction with the landscaping covered in these specifications and landscaping plans, including:
- Planting (trees, shrubs, and grass)
 - Bed preparation and fertilization
 - Notification of sources
 - Water and Maintenance until final acceptance
 - Guarantee

- 1.3 REFERENCE STANDARDS**
- A. American Standard for Nursery Stock published by American Association of Nurserymen: 27 October 1960, Edition; by American National Standards Institute, Inc. (Z60.1) - plant material.
- B. American Joint Committee on Horticultural Nomenclature: 1942 Edition of Standardized Plant Names.
- C. Texas Association of Nurserymen, Grades and Standards.
- D. Hortis Third, 1976 - Cornell University

- 1.4 NOTIFICATION OF SOURCES AND SUBMITTALS**
- A. The Contractor shall, within ten (10) days following acceptance of bid, notify the Architect/Owner of the sources of plant materials and bed preparation required for the project.
- B. Samples: Provide representative quantities of sandy loam soil, mulch, bed mix material, gravel, and crushed stone. Samples shall be approved by Architect before use on project.
- C. Product Data: Submit complete product data and specifications on all other specified materials.
- D. Submit three representative samples of each variety of ornamental trees, shrubs, and groundcover plants for Architect's approval. When approved, tag, install, and maintain as representative samples for final installed plant materials.
- E. File Certificates of Inspection of plant material by state, county, and federal authorities with Architect, if required.
- F. Soil Analysis: Provide sandy loam soil analysis if requested by the Architect.

PART 3 - EXECUTION

- 3.1 BED PREPARATION & FERTILIZATION**
- A. Landscape Contractor to inspect all existing conditions and report any deficiencies to the Owner.
- B. All planting areas shall be conditioned as follows:
- Prepare new planting beds by scraping away existing grass and weeds as necessary. Till existing soil to a depth of six (6") inches prior to placing compost and fertilizer. Apply fertilizer as per manufacturers recommendations. Add six (6") inches of compost and till into a depth of six (6") inches of the topsoil. Apply organic fertilizer such as Sustane or Green Sense at the rate of twenty (20) pounds per one thousand (1,000) square feet.
 - All planting areas shall receive a two (2") inch layer of specified mulch.
 - Backfill for tree pits shall be as follows: Use existing top soil on site (use imported topsoil as needed) free from large clumps, rocks, debris, caliche, subsoils, etc., placed in nine (9") inch layers and watered in thoroughly.
- C. Grass Areas:
- Areas to be Solid Sod Bermudagrass: Blocks of sod should be laid joint to joint, (staggered joints) after fertilizing the ground first. Roll grass areas to achieve a smooth, even surface. The joints between the blocks of sod should be filled with topsoil where they are evidently gaped open, then watered thoroughly.
 - Areas to be Hydromulch Common Bermudagrass: Hydromulch with bermudagrass seed at a rate of two (2) pounds per one thousand (1,000) square feet. Use a 4' x 8' batter board against the bed areas.

- 3.2 INSTALLATION**
- A. Maintenance of plant materials shall begin immediately after each plant is delivered to the site and shall continue until all construction has been satisfactorily accomplished.
- B. Plant materials shall be delivered to the site only after the beds are prepared and area ready for planting. All shipments of nursery materials shall be thoroughly protected from the drying winds during transit. All plants which cannot be planted at once, after delivery to the site, shall be well protected against the possibility of drying by wind and sun. Balls of earth of B & B plants shall be kept covered with soil or other acceptable material. All plants remain the property of the Contractor until final acceptance.
- C. Position the trees and shrubs in their intended location as per plan.
- D. Notify the Landscape Architect for inspection and approval of all positioning of plant materials.
- E. Excavate pits with vertical sides and horizontal bottom. Tree pits shall be large enough to permit handling and planting without injury to balls of earth or roots and shall be of such depth that, when planted and settled, the crown of the plant shall bear the same relationship to the finish grade as it did to soil surface in original place of growth.

- 3.3 CLEANUP AND ACCEPTANCE**
- A. Cleanup: During the work, the premises shall be kept neat and orderly at all times. Storage areas for all materials shall be so organized that they, too, are neat and orderly. All trash and debris shall be removed from the site as work progresses. Keep paved areas clean by sweeping or hosing at end of each days work.

JOB CONDITIONS

- A. General Contractor to complete the following punch list: Prior to Landscape Contractor initiating any portion of landscape installation. General Contractor shall leave planting bed areas three (3") inches below finish grade of sidewalks, drives and curbs as shown on the drawings. All lawn areas to receive solid soil shall be left one (1") inch below the finish grade of sidewalks, drives, and curbs. All construction debris shall be removed prior to Landscape Contractor beginning any work.
- B. General Contractor shall provide topsoil as described in Section 02200 - Earthwork.
- C. Storage of materials and equipment at the job site will be at the risk of the Landscape Contractor. The Owner cannot be held responsible for theft or damage.

- 1.6 MAINTENANCE AND GUARANTEE**
- A. Maintenance:
- The Landscape Contractor will be held responsible for the maintenance of all work from the time of planting until final acceptance by the Owner. No trees, shrubs, groundcover or grass will be accepted unless they show a healthy growth and satisfactory foliage conditions.
 - Maintenance shall include watering of trees and plants, cultivation, weeding spraying, edging, pruning of trees, mowing of grass, cleaning up and all other work necessary of maintenance.
 - A written notice requesting final inspection and acceptance should be submitted to the Owner at least seven (7) days prior to completion. An on-site inspection by Owner and Landscape Contractor will be completed prior to written acceptance.
 - After final acceptance of installation, the Landscape Contractor will not be required to do any of the above listed work.

- B. Guarantee:
- Trees shall be guaranteed for a twelve (12) month period after acceptance. Shrubs and groundcover shall be guaranteed for twelve (12) months. The Contractor shall replace all dead materials as soon as weather permits and upon notification of the Owner. Plants, including trees, which have partially died so that shape, size, or symmetry has been damaged, shall be considered subject to replacement. In such cases, the opinion of the Owner shall be final.
 - Plants used for replacement shall be of the same size and kind as those originally planted and shall be planted as originally specified. All work, including materials, labor and equipment used in replacements, shall carry a twelve (12) month guarantee. Any damage, including ruts in lawn or bed areas, incurred as a result of making replacements shall be immediately repaired.
 - At the direction of the Owner, plants may be replaced at the start of the next year's planting season. In such cases, dead plants shall be removed from the premises immediately.
 - When plant replacements are made, plants, soil mix, fertilizer and mulch are to be utilized as originally specified and inspected for full compliance with Contract requirements. All replacements are to be included under "Work" of this section.

- The Owner agrees that for the guarantee to be effective, he will water plants at least twice a week during dry periods and cultivate beds once a month after final acceptance.
- The above guarantee shall not apply where plants die after acceptance because of injury from storms, hail, freeze, insects, diseases, injury by humans, machines or theft.
- Acceptance for all landscape work shall be given after final inspection by the Owner provided the job is in a completed, undamaged condition, and there is a stand of grass in all lawn areas. At this time, the Owner will assume maintenance on the accepted work.
- Repairs: Any necessary repairs under the Guarantee must be made within ten (10) days after receiving notice, weather permitting, and in the event the Landscape Contractor does not make repairs accordingly, the Owner, without further notice to Contractor, may provide materials and men to make such repairs at the expense of the Landscape Contractor.

- 1.7 QUALITY ASSURANCE**
- A. General: Comply with applicable Federal, State, County and Local regulations governing landscape materials and work.
- B. Personnel: Employ only experienced personnel who are familiar with the required work. Provide full time supervision by a qualified foreman acceptable to Landscape Architect.
- C. Selection of Plant Material:
- Make contact with suppliers immediately upon obtaining notice of contract acceptance to select and book materials. Develop a program of maintenance (pruning and fertilization) which will insure the purchased materials will meet and/or exceed project specifications.
 - Landscape Architect will provide a key identifying each tree location on site. Written verification will be required to document material selection, source and delivery schedules to site.
 - Owner and/or Architect shall inspect all plant materials when reasonable at place of growth for compliance with requirements for genus, species, cultivar/variety, size and quality.
 - Owner and/or Architect retains the right to further inspect all plant material upon arrival at the site and during installation for size and condition of root balls, limbs, branching habit, insects, injuries, and latent defects.
 - Owner and/or Architect may reject unsatisfactory or defective material at any time during the process of work. Remove rejected materials from the site immediately. Plants damaged in transit or at job site shall be rejected.

- 1.8 PRODUCT DELIVERY, STORAGE AND HANDLING**
- A. Preparation:
- Balled and Burlapped (B&B) Plants: Dig and prepare shipment in a manner that will not damage roots, branches, shape, and future development.
 - Container Grown Plants: Deliver plants in rigid container to hold ball shape and protect root mass.

- A. Delivery:
- Deliver packaged materials in sealed containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
 - Deliver only plant materials that can be planted in one day unless adequate storage and watering facilities are available on job site.
 - Protect root balls by heeling in with sawdust or other approved moisture retaining material if not planted within 24 hours of delivery.
 - Protect plants during delivery to prevent damage to root balls or desiccation of leaves. Keep plants moist at all times. Cover all materials during transport.
 - Notify Architect of delivery schedule 72 hours in advance so plant material may be observed upon arrival at job site.
 - Remove rejected plant material immediately from site.
 - To avoid damage or stress, do not lift, move, adjust to plumb, or otherwise manipulate plants by trunk or stems.

- PART 2 - PRODUCTS**
- 2.1 PLANTS**
- A. General: Well-formed No. 1 grade or better nursery grown stock. Listed plant heights are from tops of root balls to nominal tops of plants. Plant spread refers to nominal outer width of the plant, not to the outer leaf tips. Plants will be individually approved by the Architect and his decision as to their acceptability shall be final.
- B. Quantities: The drawings and specifications are complementary. Anything called for on one and not the other is as binding as if shown and called for on both. The plant schedule is an aid to bidders only. Confirm all quantities on plan.
- C. Quality and size: Plant materials shall conform to the size given on the plan, and shall be healthy, symmetrical, well-shaped, full branched, and well rooted. The plants shall be free from injurious insects, diseases, injuries to the bark or roots, broken branches, objectionable disfigurements, insect eggs and larvae and are to be of specimen quality.
- D. Approval: All plant materials shall be subject to the approval of the Owner. All plants which are found unsuitable in growth, or in any unhealthy, badly shaped, or undersized condition, will be rejected by the Landscape Architect, either before or after planting, and shall be removed at the expense of the Landscape Contractor and replaced with acceptable plants as specified.
- E. Trees shall be healthy, full-branched, well-shaped and shall meet the trunk diameter and height requirements of the plant schedule. Balls shall be firm, neat, slightly tapered, and well wrapped in burlap. Any tree loose in the ball or with broken ball at time of planting will be rejected. Balls shall be ten (10") inches in diameter for each one (1") inch of trunk diameter. Measured six (6") inches above ball. Nomenclature conforms to the customary nursery usage. For clarification, the term "multi-trunk" defines a plant having three (3) or more trunks of nearly equal diameter.
- F. Pruning: All pruning of trees and shrubs, as directed by the Landscape Architect, shall be executed by the Landscape Contractor at no additional cost to the Owner.

2.2 SOIL PREPARATION MATERIALS

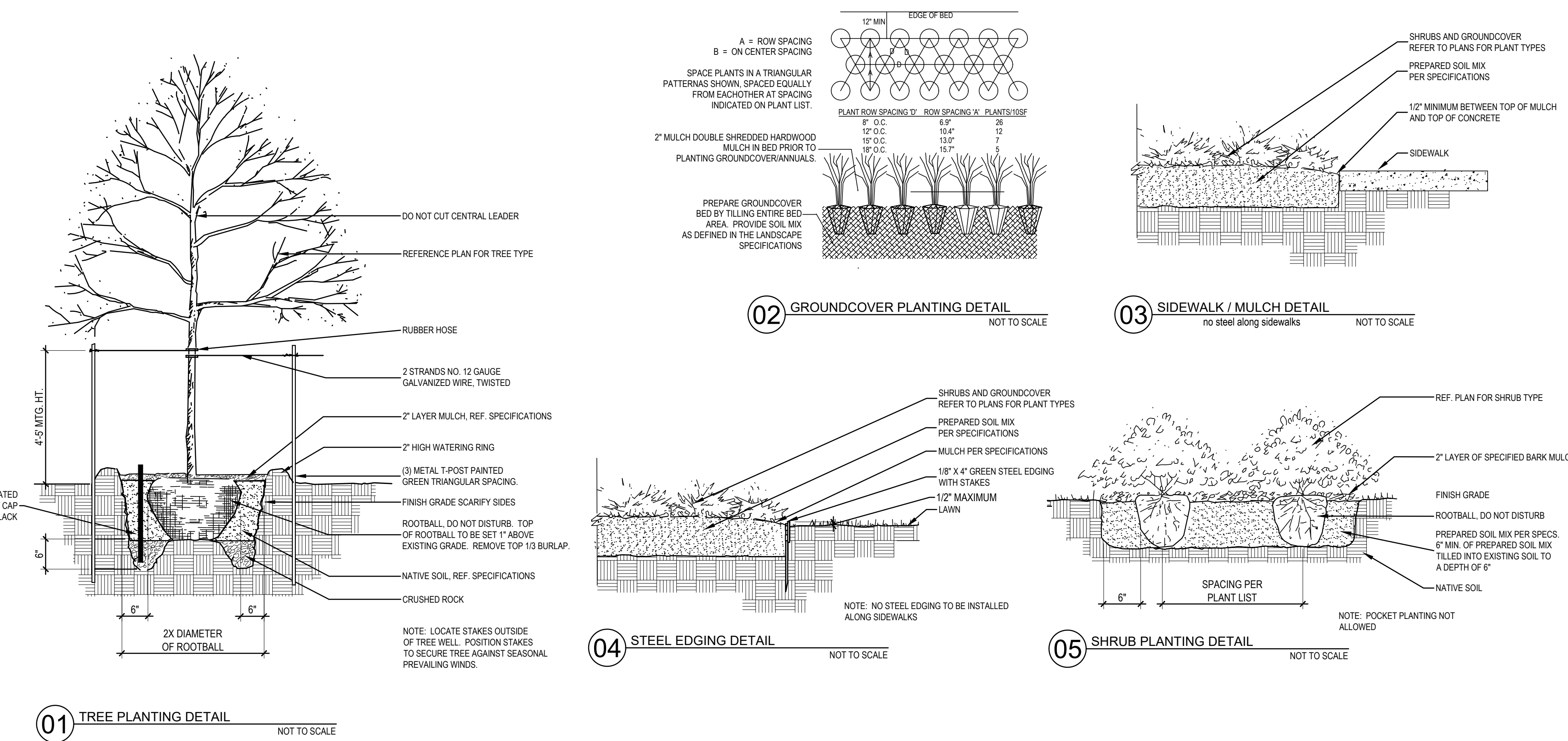
- A. Sandy Loam:
- Frable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones and other extraneous material and reasonably free of weeds and foreign grasses. Loam containing Dalisgrass or Nutgrass shall be rejected.
 - Physical properties as follows:
 - Clay - between 7-27 percent
 - Silt - between 15-25 percent
 - Sand - less than 52 percent
 - Organic matter shall be 3%-10% of total dry weight.
 - If requested, provide a certified soil analysis conducted by an approved soil testing laboratory verifying that sandy loam meets the above requirements.
- B. Organic Material: Compost with a mixture of 80% vegetative matter and 20% animal waste. Ingredients should be a mix of course and fine textured material.
- C. Premixed Bedding Soil as supplied by Vital Earth Resources, Gladewater, Texas; Professional Bedding Soil as supplied by Living Earth Technology, Dallas, Texas or Acid Gro Municipal Mix as supplied by Soil Building Systems, Dallas, Texas or approved equal.
- D. Sharp Sand: Sharp sand must be free of seeds, soil particles and weeds.
- E. Mulch: Double Shredded Hardwood Mulch, partially decomposed, dark brown. Living Earth Technologies or approved equal.
- F. Organic Fertilizer: Fertilid, Sustane, or Green Sense or equal as recommended for required applications. Fertilizer shall be delivered to the site in original unopened containers, each bearing the manufacturer's guaranteed statement of analysis.
- A. Commercial Fertilizer: 10-20-10 or similar analysis. Nitrogen source to be a minimum 50% slow release organic Nitrogen (SCU or UF) with a minimum 8% sulphur and 4% iron, plus micronutrients.
- B. Peat: Commercial sphagnum peat moss or partially decomposed shredded pine bark or other approved organic material.

- 2.3 MISCELLANEOUS MATERIALS**
- A. Steel Edging: Shall be Ryerson "Estate Curbing", 1/8" x 4" with stakes 4" on center.
- B. Staking Material for Shade Trees:
- Post: Studded T-Post, #1 Armoic with anchor plate; 6'-0" length; paint green.
 - Wire: 12 gauge, single strand, galvanized wire.
 - Rubber hose: 2 ply, fiber reinforced hose, minimum 1/2 inch inside diameter. Color: Black.
- C. Gravel: Washed native pea gravel, graded 1 in. to 1-1/2 in.
- D. Filter Fabric: Miraf 140N by Celanese Fibers Marketing Company, available at Lottland Co., (214) 631-5250 or approved equal.

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02.12.2021



C-STORE & CARWASH
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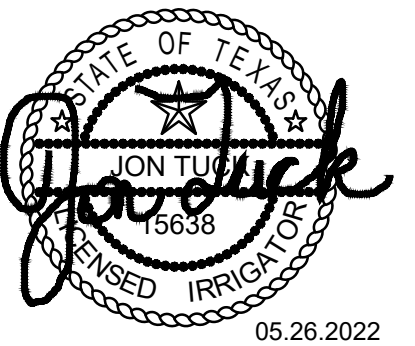
ISSUE:
FOR APPROVAL 02.12.2021

DATE:
02.12.2021

SHEET NAME:
LANDSCAPE DETAILS

SHEET NUMBER:

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05.26.2022

C-STORE & CARWASH

Chisos St & Barnes Dr
San Marcos, TX 78666

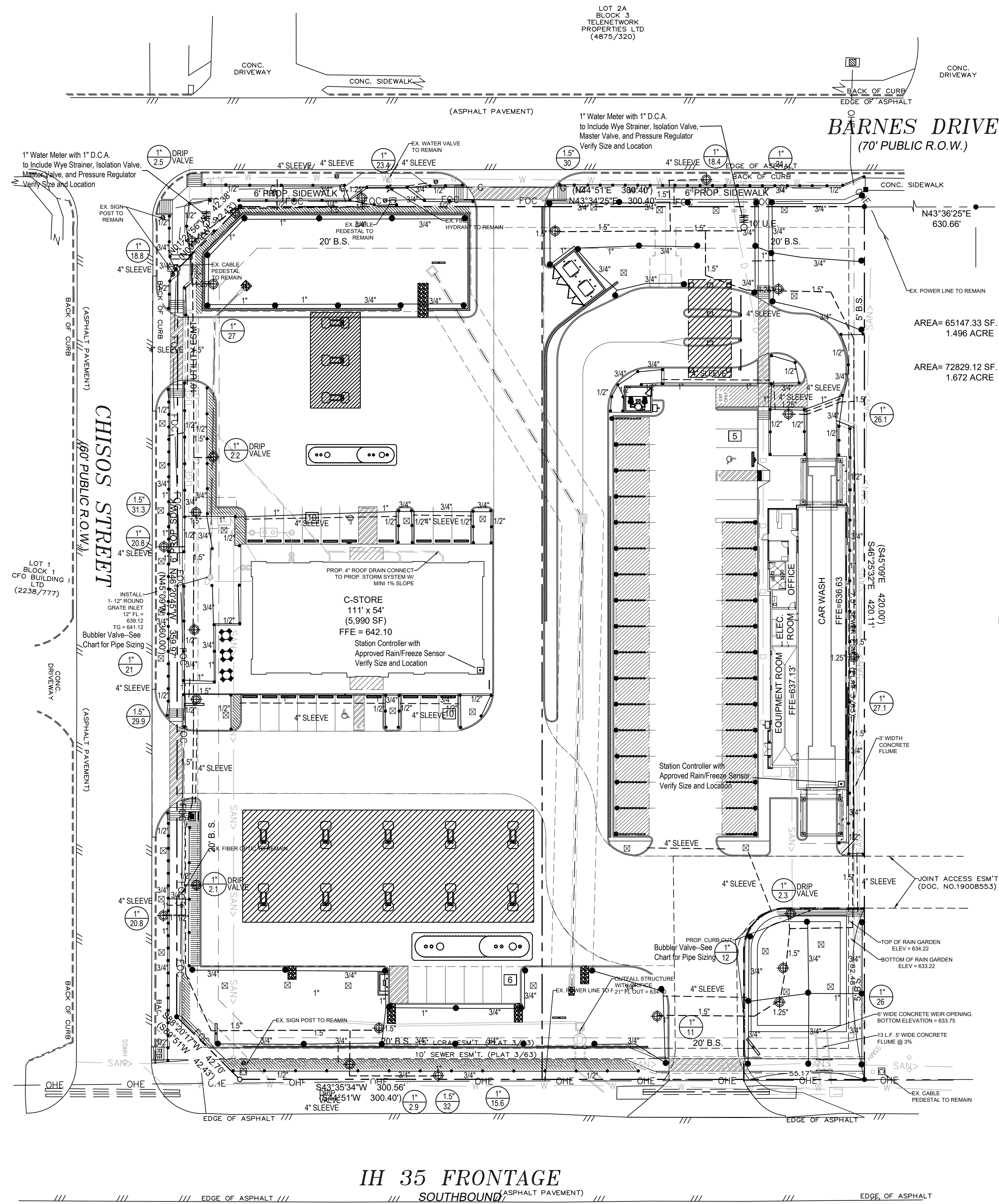
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CITY COMMENTS 10.27.2021
CITY COMMENTS 05.26.2022

DATE:
05.26.2022

SHEET NAME:
IRRIGATION PLAN

SHEET NUMBER:

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TCEQ 2009 NOTES

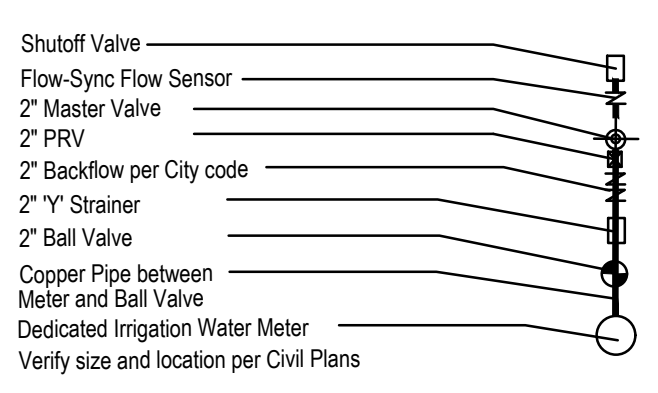
- All irrigation equipment to be located no closer than 4' to any pavement and / or structure
- Electrical splices at each valve and controller only.
- Irrigation in Texas is regulated by the Texas Commission on Environmental Quality (TCEQ)
MC-178 / P.O. BOX 13087
Austin, Texas 78711-3087
www.tceq.state.tx.us

BUBBLER PIPING CHART

- 1-5 BUBBLERS - 1/2" PIPE
- 6-10 BUBBLERS - 3/4" PIPE
- 11-20 BUBBLERS - 1" PIPE
- 21-30 BUBBLERS - 1 1/4" PIPE
- 31-40 BUBBLERS - 1 1/2" PIPE

IRRIGATION LEGEND

- Hunter PRS30-04 4" Pop-up Spray Head with Plastic Hunter Pro Adjustable Nozzle
- Hunter PRS30-12 12" Pop-up Spray Head with Plastic Hunter Pro Adjustable Nozzle
- Hunter PGP Ultra-04 Rotors
- Hunter Multi-Stream Bubbler Nozzle on Hunter PRS30-06 Pop-up Spray Head
- Spray, Rotor & Bubbler Zones-Hunter PGV Control Valves (PGV101G & PGV-151) (See Plan for Size)
- Drip Zones-Hunter ICZ Zone Control Kits (ICZ-101) (See Plan for Size)
- Hunter I-Core series Controller with Hunter Solar Sync Sensor & Hunter Flow-Sync Sensor
- WATER METER, SIZE AS INDICATED
- D.C.A. SIZE AS INDICATED
- to include Wye Strainer, Isolation Valve, Master Valve, and Pressure Regulator
- PVC CLASS 200 LATERAL LINE
- PVC CLASS 200 MAINLINE
- PVC SCHEDULE 40 SLEEVING
- VALVE SIZE
- GPM
- HUNTER HDL-09-12-100-PC Drip Line and Fittings (12" LATERAL SPACING, 12" EMITTER SPACING)
- PVC LATERAL PIPING SIZED AS REQUIRED
- INSTALL ALL EQUIPMENT ACCORDING TO MANUFACTURERS SPECIFICATIONS



SLEEVING NOTES

- Contractor shall lay sleeves and conduits at twenty-four (24) inches below finish grade of the top of pavement.
- Contractor shall extend sleeves one (1) foot beyond edge of all pavement.
- Contractor shall cap pipe ends using PVC caps.
- All sleeves shall be Schedule 40 PVC pipe.
- Contractor shall furnish Owner and Irrigation Contractor with an 'as-built' drawing showing all sleeve locations.

Water Pressure Calculations

Static Pressure (at the water meter)- 65 psi
Design Pressure for Remote Zone- 56.4 psi
Pressure Losses for Remote Zone and Meter Components- 21.4 psi

Water Meter Components- Pressure Losses

Master Valve Pressure- 2 psi
Pressure Regulator- 1.2 psi
Back Flow- 5 psi
Wye Strainer- 75 psi
Ball Valve- .8 psi

Irrigation Zones Pressure Losses- (most remote zone)

Main Line- 8.1 psi
Valve- 2 psi
Later Line- 1.5 psi
Sprinkler requirements-35 psi

IRRIGATION NOTES

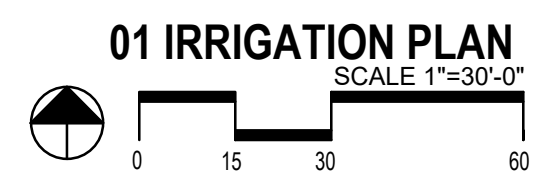
- All sprinkler equipment numbers reference the HUNTER equipment catalog unless otherwise indicated.
- LAWN SPRAY HEADS are SRS-04 installed as per detail shown.
- SHRUB SPRAY HEADS are SRS-12 installed as per detail shown.
- ELECTRIC CONTROL VALVES shall be HUNTER PGV-S SERIES installed per detail shown. Size valves as shown on plan. Valves shall be installed in valve boxes large enough to permit manual operation, removal of solenoid and/or valve cover without any earth excavation.
- QUICK COUPLING VALVES shall be HQ-44-LRC-AW installed per detail shown. Swing joints shall be constructed using 1" Schedule 80 elbows. Contractor shall supply owner with three (3) HK couplers and three (3) #10 swivel hose ends as part of this contract.
- AUTOMATIC CONTROLLER shall be installed at location shown. Power (120V) shall be located in a junction box within five (5) feet of controller location by other trades.
- All 24 volt wiring is to be UF 14 single conductor. All wire splices are to be permanent and waterproof.
- SLEEVES shall be installed by General Contractor. Sleeve material shall be Schedule 40. Size as indicated on plan.
- Ten days prior to start of construction, Landscape or Irrigation Contractor shall verify static water pressure. If static pressure is less than 65 P.S.I., do not work until notified to do so by Owner.
- All main line and lateral piping to a minimum of 12 inches of cover. All piping under paving shall have a minimum of 18" of cover.
- The Irrigation Contractor shall coordinate installation of the system with the Landscape Contractor so that all plant material will be watered in accordance with the intent of the plans and specifications.
- The Irrigation Contractor shall select the proper arc and radius for each nozzle to insure 100% and proper coverage of all lawn areas and plant material. All nozzles in parking lot islands and planting beds shall be low angle to minimize over spray on pavement surfaces. No water will be allowed to spray on building.

DRIP IRRIGATION NOTES

- Drip Irrigation Equipment numbers reference Rainbird Equipment Catalog unless otherwise noted.
- Landscape Contractor shall be required to supply Owner's Construction Manager with all equipment specifications and maintenance guidelines.
- Landscape Contractor shall be required to follow Manufacturer's Specifications and Installation guidelines for drip system.
- PRESSURE COMPENSATING EMITTERS shall be: Multiset Rain Bug EMT-6-M101, Multi outlet Shrub Bug EMT-6-M101 or approved equal. (1 PER EVERY 6 - 4" POTS)
- SINGLE OUTLET PRESSURE COMPENSATING EMITTERS shall be: Rain Bug Emitters EM-M05, -M10, -M20 and Shrub Bug Emitters EMT-M10, -M20 or approved equal. (1 PER EACH 1 OR 5 GAL PLANT)
- DRIP PRESSURE REGULATORS shall be: PSI-HLA-15, PSI-HLA-20, PSI-HMB-20, PSI-HMB-25 or approved equal.
- Y-FILTERS shall be: RBY-075-200, RBY-100-200 or approved equal.
- MAIN IRRIGATION TUBING shall be: RBT-150P, RBT-160V or approved equal.
- EMITTER DISTRIBUTION TUBING shall be: RBT-150P, RBT-160V or approved equal.
- SUBTERRANEAN EMITTER BOX shall be: SEB-6 or approved equal.
- Drip system piping only occurs within shrub / groundcover beds and rock mulch areas. Piping shall be a maximum 4" depth and a minimum 2" depth.
- Contractor shall verify that all drip system valves and spray system valves are sectioned separately on controller.

CITY IRRIGATION NOTES

- Check valves to be used as needed to prevent low-head drainage.
- PVC pipe to be sized such that flows will not exceed velocity of 5 FPS.
- PVC pipe joints to be primed with colored primer before applying PVC cement.



IH 35 FRONTAGE

SOUTHBOUND (ASPHALT PAVEMENT)

SECTION 02810 - IRRIGATION

PART 1 - GENERAL

- 1.1 SCOPE**
- A. Provide complete sprinkler installation as detailed and specified herein. Includes furnishing all labor, materials, and equipment for the proper installation. Work includes but is not limited to:
 1. Trenching and backfill
 2. Automatic controlled system.
 3. Upon completion of installation, supply drawings showing details of construction including location of mainline piping, manual and automatic valves, electrical supply to valves, and specifically exact location of automatic valves.
 - B. All sleeves as shown on plans will be furnished by General Contractor. Meter and power source to be provided by General Contractor.
- 1.2 RELATED WORK SPECIFIED ELSEWHERE**
- A. See Irrigation Plans. See plans for controller, heads, and valves.
 - B. Section 02900-Landscape
 - C. Section 02811-Underground Irrigation Sleeve and Utility Conduits
- 1.3 APPLICABLE STANDARDS**
- A. America Standard for Testing and Materials (ASTM) - Latest edition.
 1. D2241 Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
 2. D2464 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Thread, Schedule 80
 3. D2455 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
 4. D2487 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Socket Type, Schedule 80
 5. D2254 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings
 6. D2287 Flexible Poly (Vinyl Chloride) (PVC) Plastic Pipe
 7. F658 Poly Vinyl Chloride (PVC) Solvent Weld Primer
 8. D2655 Making Solvent - Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings
- 1.4 MAINTENANCE AND GUARANTEE**
- A. Materials and workmanship shall be fully guaranteed for one (1) year after final acceptance.
 - B. Provide maintenance of system, including raising and lowering of heads to compensate for lawn growth, cleaning and adjustment of heads, raising and lowering of shrub heads to compensate for shrub growth, for one (1) year after completion of installation.
 - C. Guarantee is limited to repair and replacement of defective materials or workmanship, including repair of backfill settlement.

1.5 SUBMITTALS

- A. Procedure: Comply with Division 1 requirements.
- B. Product Data: Submit (5) copies of equipment manufacturer's specifications and literature for approval by Landscape Architect prior to installation.
- C. Project Record Documents
 1. Comply with Division 1 requirements.
 2. Locate by written dimension, routing of mainline piping, remote control valves and quick coupling valves. Locate mainlines by single dimensions from permanent site features provided they run parallel to these elements. Locate valves, intermediate electrical connections, and quick couplers by two dimensions from a permanent site feature at approximately 70 degrees to each other.
 3. When dimensioning is complete, transpose work to mylar reproducible tracings.
 4. Submit completed tracings prior to final acceptance. Mark tracings "Record Prints Showing Significant Changes". Date and sign drawings.
 5. Provide three complete operation manuals and equipment brochures neatly bound in a hard back three-ring binder. Include product data on all installed materials. Include warranties and guarantees extended to the Owner by the manufacturer of all equipment.
- D. Quick Coupler Keys: Provide 3 coupler keys with boiler drains attached using brass reducer.
- E. Controller Keys: Provide three sets of keys to controller enclosure(s).
- F. Use of materials differing in quality, size, or performance from those specified will only be allowed upon written approval of the Landscape Architect. The decision will be based on comparative ability of material or article to perform fully all purposes of mechanics and general design considered over to be possessed by item specified.
- G. Bidders desiring to make a substitution for specified sprinklers shall submit manufacturer's catalog sheet showing full specification of each type sprinkler proposed as a substitute, including discharge in GPM maximum allowable operating pressure at sprinkler.
- H. Approval of substitute sprinkler shall not relieve Irrigation Contractor of his responsibility to demonstrate that final installed sprinkler system will operate according to intent of originally designed and specified system.
- I. It is the responsibility of the Irrigation Contractor to demonstrate that final installed sprinkler system will operate according to intent of originally designed and specified system. If Irrigation Contractor notes any problems in head spacing or potential coverage, it is his responsibility to notify the Landscape Architect in writing, before proceeding with work. Irrigation Contractor guarantees 100% coverage of all areas to be irrigated.

1.6 TESTING

- A. Perform testing required with other trades, including earthwork, paving, plumbing, electrical, etc. to avoid unnecessary cutting, patching and boring.
- B. Wire Connectors: Waterproof splice kit connectors. Type DBY by 3M.

2.6 SCHEDULE 80 PVC NIPPLES

- A. Composed of Standard Schedule 40 PVC Fittings and PVC meeting noted standards. No clamps or wires may be used. Nipples for heads and shrub risers to be nominal one-half inch diameter by eight inches long, where applicable.
- B. Polyethylene nipples six (6") inches long to be used on all pop-up spray heads.

2.7 MATERIALS - See Irrigation Plan

- A. Sprinkler heads in lawn area as specified on plan.
- B. PVC Pipe: Class 200, SDR 21 Copper Tubing (City Connection): Type "M" 24V Wire: Size 14, Type U.F.
- C. Electric valves to be all plastic construction as indicated on plans.
- D. Refer to drawing for backflow prevention requirements and flow valve.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

- A. Staking: Before installation is started, place a stake where each sprinkler is to be located, in accordance with drawing. Staking shall be approved by Landscape Architect before proceeding.
- B. Excavations: Excavations are unclassified and include earth, loose rock, rock or any combination thereof, in wet or dry state. Backfill trenches with material that is suitable for compaction and contains no lumps, clods, rock, debris, etc. Special backfill specifications, if furnished take preference over this general specification.
- C. Backfill: Flood or hand-tamp to prevent after setting. Hand rake trenches and adjoining area to leave grade in as good or better condition than before installation.
- D. Piping Layout: Piping layout is diagrammatic. Route piping around trees and shrubs in such a manner as to avoid damage to plantings. Do not dig within ball of newly planted trees or shrubs.

3.2 PIPE INSTALLATION

- A. Sprinkler Mains: Install a four (4") inch minimum trench with a minimum of eighteen (18") inches of cover.
- B. Lateral Piping: Install a four (4") inch wide minimum trench deep enough to allow for installation of sprinkler heads and valves, but in no case, with less than twelve (12") of cover.
- C. Trenching: Remove lumber, rubbish, and large rocks from trenches. Provide firm, uniform bearing for entire length of each pipe line to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before welding, and keep piping clean by approved means during and after laying of pipe.

3.3 PVC PIPE AND FITTING ASSEMBLY

- A. Solvent: Use only solvent recommended by manufacturer to make solvent-welded joints. Thoroughly clean pipe and fittings of dirt, dust and moisture before applying solvent.
- B. PVC to metal connection: Work metal connections first. Use a non-hardening pipe dope such as Permatex No. 2 on threaded PVC adapters into which pipe may be welded.

3.4 COPPER TUBING AND FITTING ASSEMBLY

- Clean pipe and fitting thoroughly and lightly sand pipe connections to remove residue from pipe. Attach fittings to tubing in an approved manner using 50-50 soft solid core solder.

3.5 POP-UP SPRAY HEADS

- Supply pop-up spray heads in accordance with materials list and plan. Attach sprinkler to lateral piping with a semi-flexible polyethylene nipple not less than three (3") inches or more than six (6") inches long.

3.6 VALVES

- Supply valves in accordance with materials list and sized according to drawings. Install valves in a level position in accordance with Manufacturer's Specifications. See plan for typical installation of electric valve, valve box.

3.7 WIRING

- A. Supply wire from the automatic sprinkler control to the valves. No conduit will be required for U.F. wire unless otherwise noted on the plan. Wire shall be tucked under the piping.
- B. A separate wire is required from the control to each electric valve. A common neutral wire is also required from each control to each of the valves served by each particular control.
- C. Bundle multiple wires and tape them together at ten (10') foot intervals. Install ten (10') inch expansion coil at not more than one hundred (100') foot intervals. Make splices waterproof.

3.8 AUTOMATIC SPRINKLER CONTROLS

- Supply in accordance with Irrigation Plan. Install according to manufacturer's recommendations.

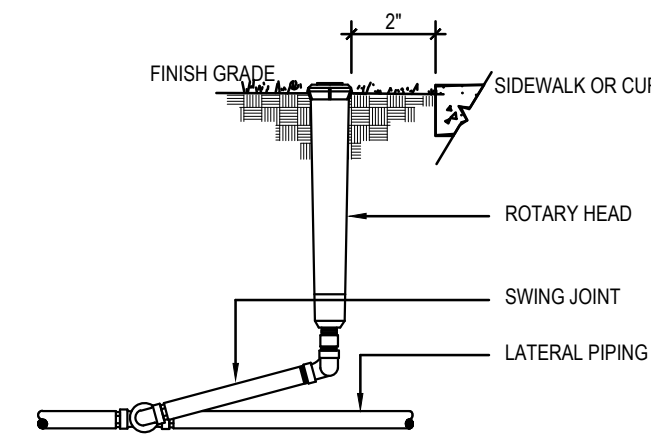
3.9 TESTING

- A. Sprinkler Mains: Test sprinkler main only for a period of twelve (12) to fourteen (14) hours under normal pressure. If leaks occur, replace joint or joints and repeat test.
- B. Complete tests prior to backfilling. Sufficient backfill material may be placed in trenches between fittings to insure stability of line under pressure. In each case, leave fittings and couplings open to visual inspection for full period of test.

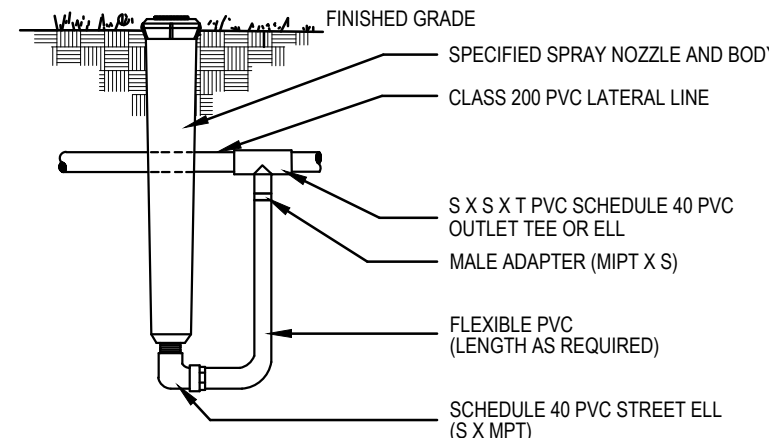
3.10 FINAL ADJUSTMENT

After installation has been completed, make final adjustment of sprinkler system in preparation for Landscape Architect's final inspection. Completely flush system to remove debris from lines and turning on system. Check sprinklers for proper operation and proper alignment for direction of flow. Check each section of spray heads for operating pressure and balance to other sections by use of flow adjustment and top of each valve. Check nozzling for proper coverage. Prevailing wind conditions may indicate that arch of angle of spray should be other than shown on drawings. In this case, change nozzles to provide correct coverage.

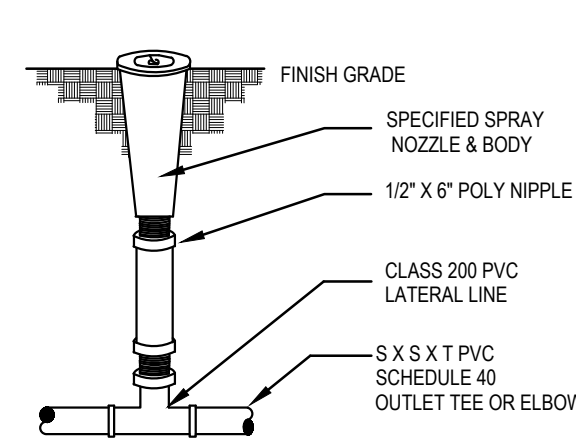
END OF SECTION



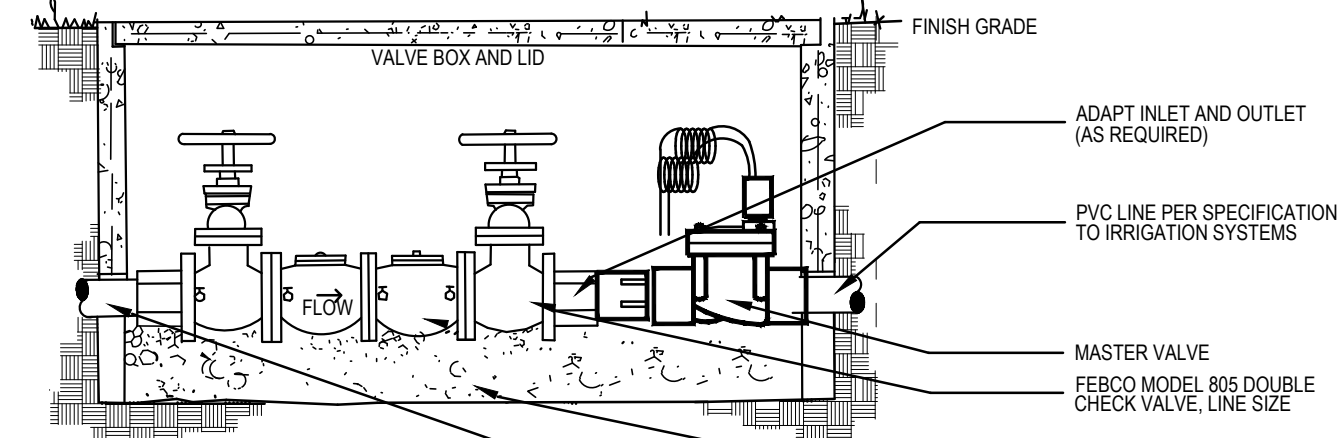
01 ROTARY HEAD NOT TO SCALE



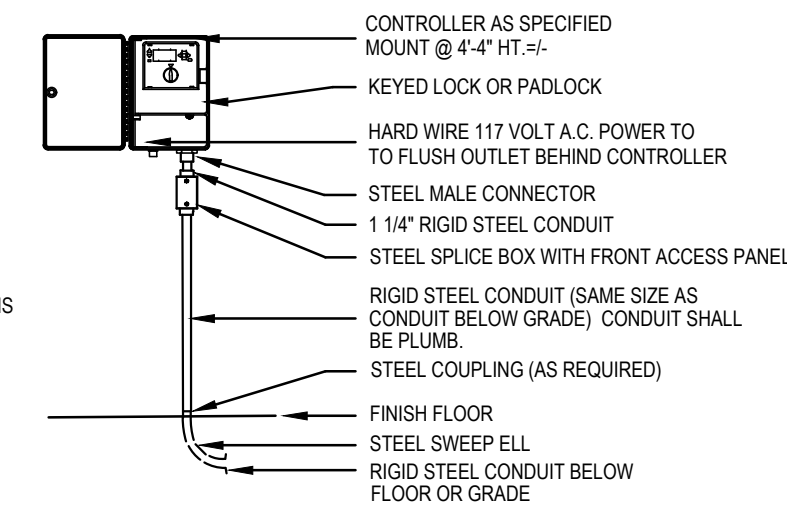
02 HIGH POP-UP SPRAY ASSEMBLY NOT TO SCALE



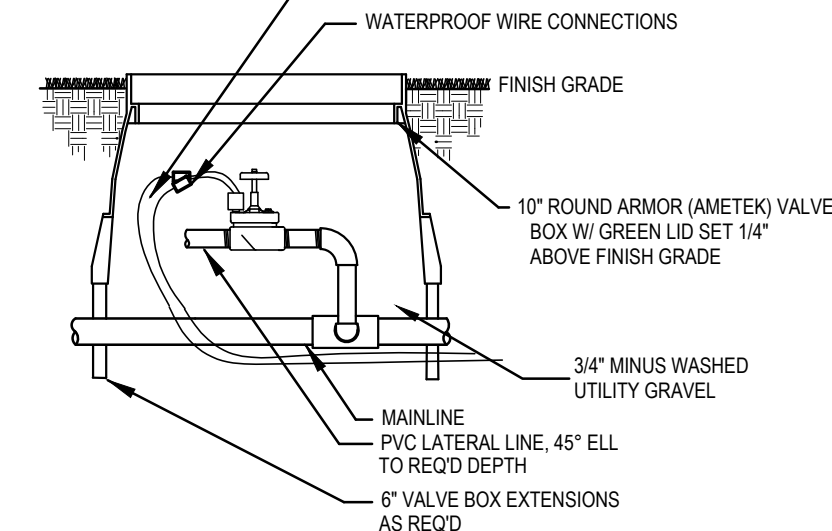
03 POP-UP LAWN SPRAY ASSEMBLY NOT TO SCALE



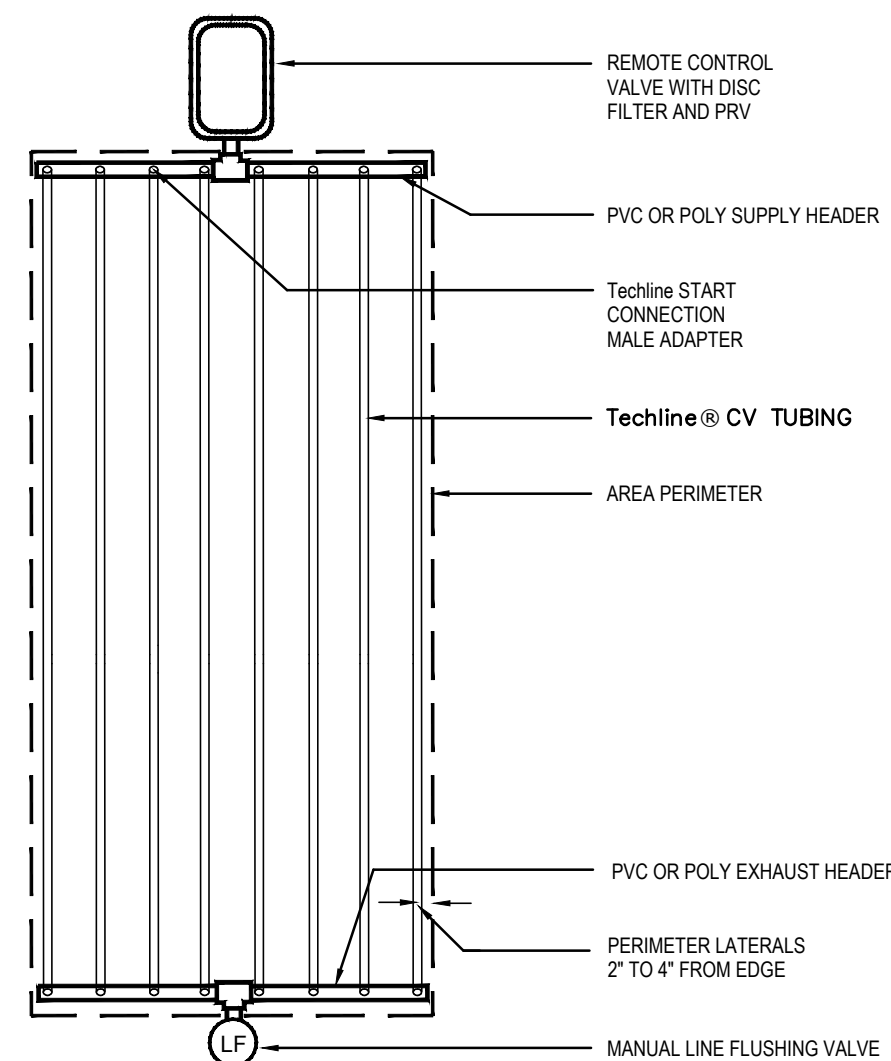
04 BACKFLOW PREVENTER NOT TO SCALE



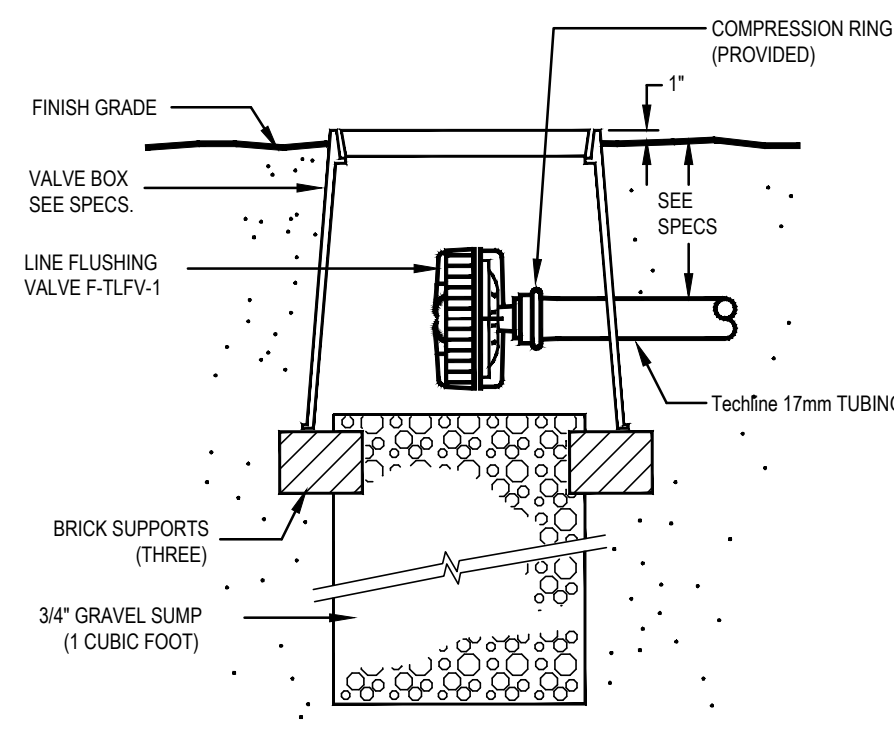
05 WALL MOUNTED CONTROLLER NOT TO SCALE



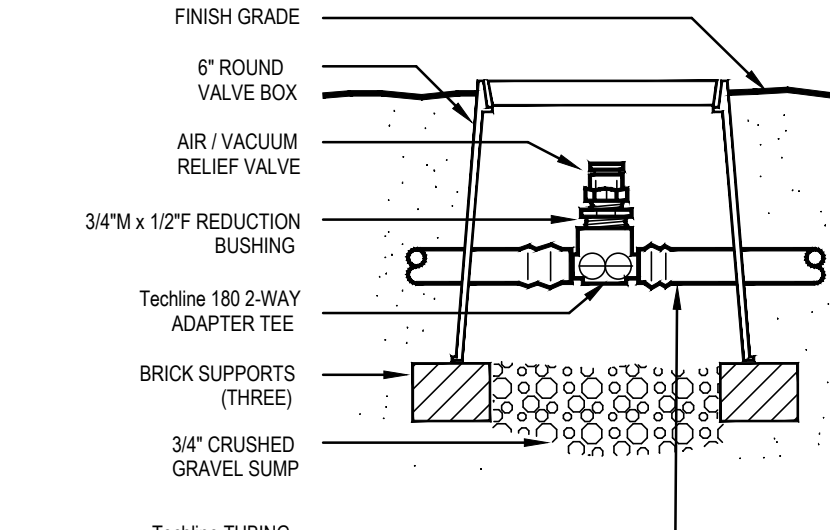
06 REMOTE CONTROL VALVE NOT TO SCALE



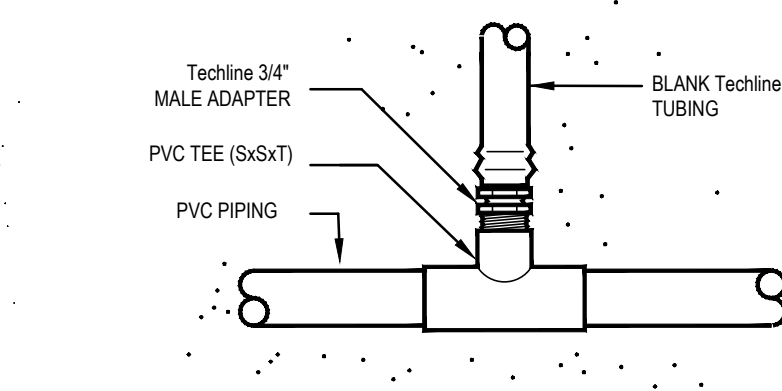
07 TechLine CV END FEED LAYOUT NOT TO SCALE



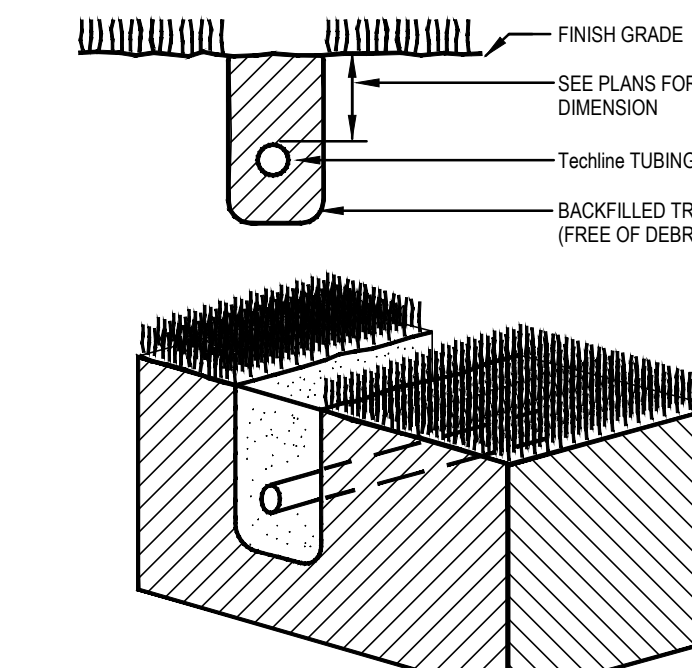
08 TechLine LINE FLUSHING VALVE NOT TO SCALE



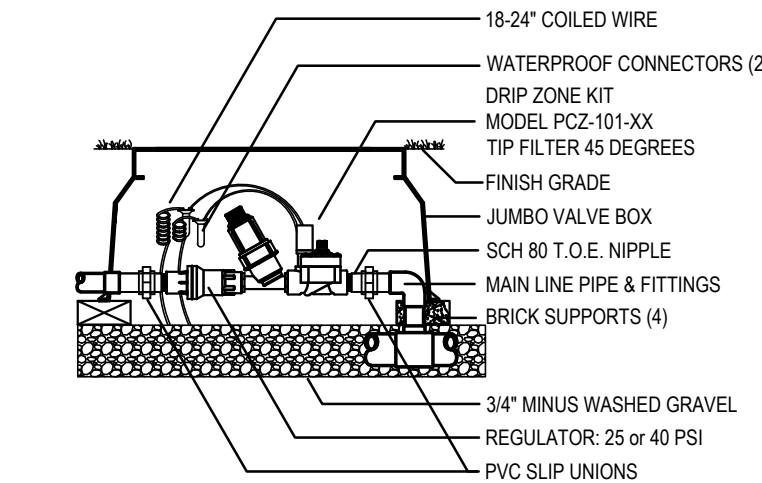
09 TechLine AIR/VACUUM RELIEF NOT TO SCALE



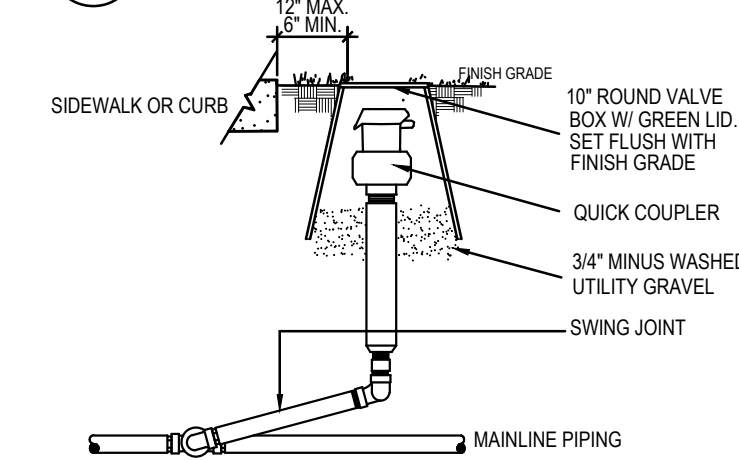
11 TechLine START CONNECTION NOT TO SCALE



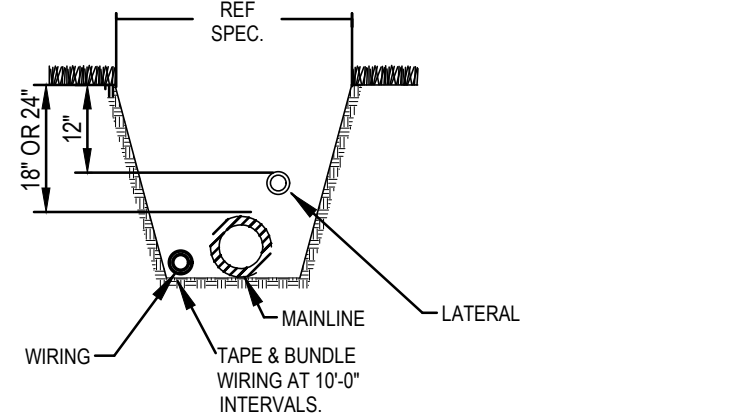
12 TechLine TRENCHING NOT TO SCALE



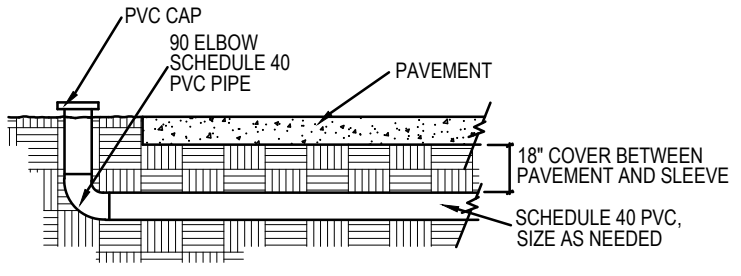
13 DRIP CONTROL VALVE NOT TO SCALE



14 QUICK COUPLER NOT TO SCALE

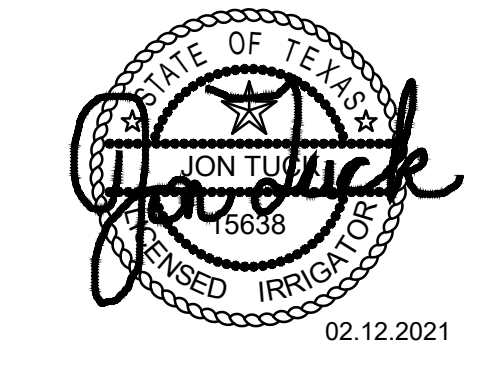


15 TRENCH DETAIL NOT TO SCALE



16 SLEEVE DETAIL NOT TO SCALE

LANDSCAPE ARCHITECT
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C-STORE & CARWASH
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San Marcos, TX 78666

ISSUE:
FOR APPROVAL 02.12.2021

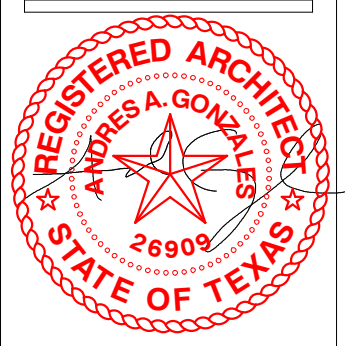
DATE:
02.12.2021

SHEET NAME:
IRRIGATION DETAILS

SHEET NUMBER:

L.4

2/09/2022 ISSUE FOR PERMIT



METHOD ARCHITECTURE, LLC
 ARCHITECTS
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SUDS DELUXE CAR WASH
 SAN MARCOS
 IH 35 & CHICOS
 SAN MARCOS, TEXAS 78666

PM: AAG DE: KS
 PROJECT:
 M22-02-B0035

SHEET:
A1.00
 SITE PLAN &
 NOTES

KEYNOTES - SITE PLAN

#	NOTE
S1	PARKING STRIPE - RE: CIVIL
S2	EDGE OF VACUUM CANOPY ABOVE - RE: 4/A1.10
S3	EDGE OF PAY STATION CANOPY ABOVE - RE: 12/A1.10
S4	PROVIDE 6" BOLLARD WHERE SHOWN - RE: 2/A1.10
S5	LPR CAMERA POLE
S7	WATER RECLAIM TANKS - RE: MEP
S8	SAND/OIL INTERCEPTOR - RE: MEP
S9	SAMPLE WELL - RE: MEP
S12	WALL-MOUNTED ELECTRICAL & PHONE BOXES - RE: MEP
S13	DOMESTIC WATER P.O.E.
S14	SANITARY WATER P.O.E.
S16	SITE LIGHTING POLE MOUNTED - RE: MEP
S17	PROPOSED 35' PYLON SIGN - OWNER PROVIDED
S18	MAT CLEANER OFCI
S19	RETAINING WALL - RE: CIVIL
S20	CONCRETE DRAINAGE FLUME - RE: CIVIL
S21	PROPOSED SIDEWALK - RE: CIVIL
S22	PROVIDE CURB RAMP WITH 1:12 SLOPE AND DETACHABLE WARNING - 1/4" TOOLED JOINTS @ 2" O.C. ENTIRE WIDTH OF RAMP - STAIN CONCRETE ENTIRE WIDTH OF RAMP
S23	PAINTED STRIPING WALKWAY - RE: CIVIL
S24	PROVIDE PAINTED WAYFINDING THROUGHOUT SITE - VERIFY EXACT MARKINGS WITH OWNER

PARKING CALCULATION PER 35-526 PARKING AND LOADING STANDARDS

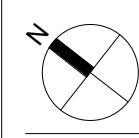
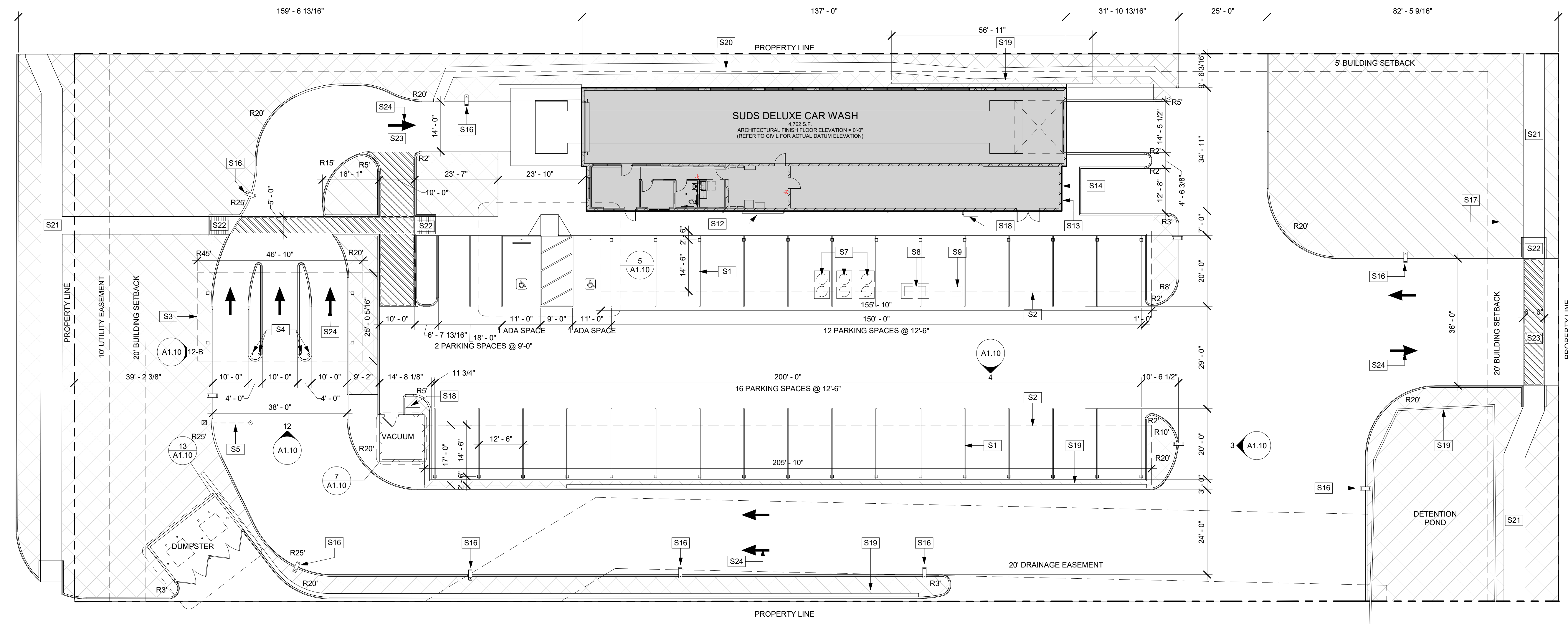
CAR WASH (B)	1 SPACE PER 500 SQUARE FEET OF GFA OF AUTOMATED CAR WASH		
	NET S.F.	CALCULATION	SPACES REQUIRED
	4,762	4,762/500 = 9.5	10
			SPACES PROVIDED
			33
ADA PARKING	1 SPACE PER 25 PARKING SPACES PROVIDED		
	SPACES PROVIDED	ADA PROVIDED	REQUIRED
	33	2	2

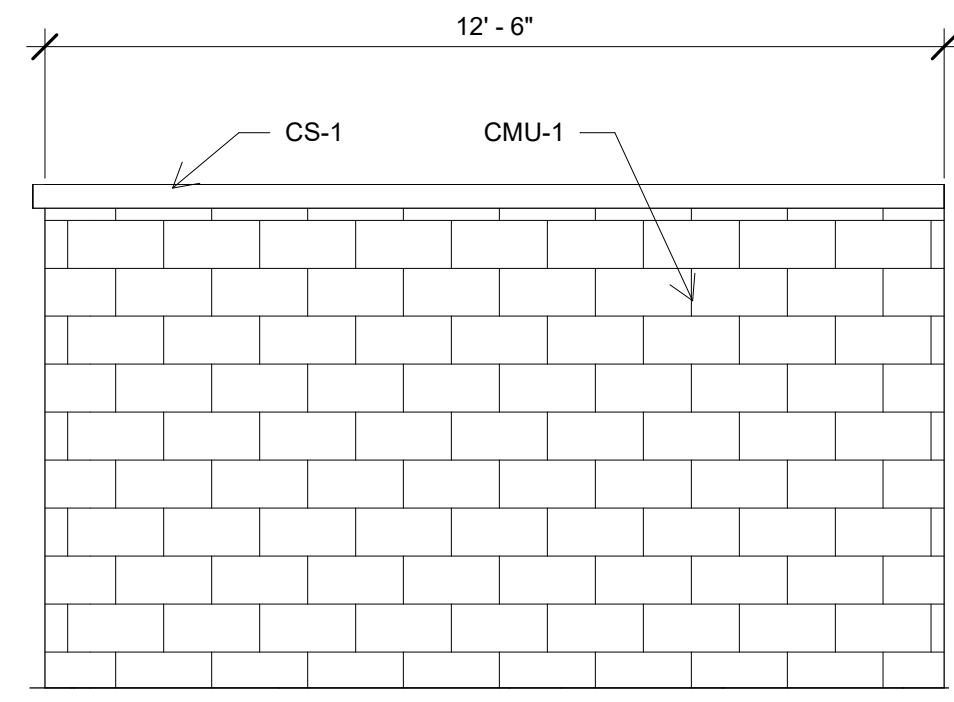
SITE PLAN NOTES

- REFER TO BOUNDARY SURVEY TO ESTABLISH PROPERTY LINES AND EASEMENTS
- REFER TO GEOTECHNICAL INVESTIGATION REPORT FOR PAVING SUBGRADE
- REFER TO CIVIL DRAWINGS FOR SITE GRADING/DRAINAGE AND DRIVEWAY AND DETENTION DETAILS
- ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 1:50 SLOPE IN ANY DIRECTION
- ACCESSIBLE ROUTES FROM PARKING TO BUILDING SHALL NOT EXCEED 1:20 SLOPE
- NO CROSS SLOPES SHALL EXCEED 1:50 (2.0% SLOPE) OR 1/4" PER FOOT IN ANY LOCATION
- ALL SIDES OF BUILDING TO HAVE POSITIVE DRAINAGE AWAY FROM BUILDING FOUNDATION, INCLUDING FINAL LANDSCAPE COVERING.
- REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR DRAINAGE DESIGN AND CONFIGURATION. CONTRACTOR TO COORDINATE CIVIL GRADING AND LANDSCAPE DESIGN TO ENSURE COMPLIANCE.
- RADIUS SYMBOLS TO BE READ AS R"x" WHERE "x" INDICATES RADIUS MEASUREMENT IN FEET.

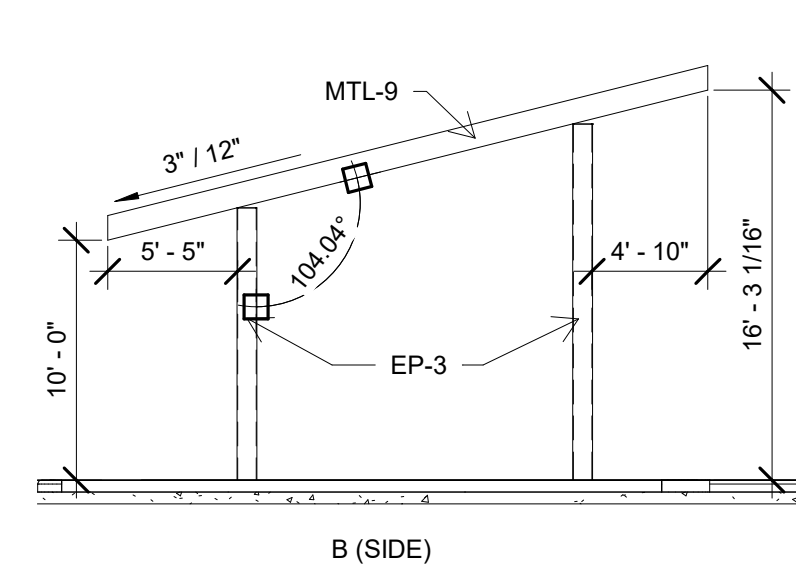
SITE MATERIAL LEGEND

	CONCRETE PAVING		SIDEWALK AREA		FIRE LANE		LANDSCAPED AREA
--	-----------------	--	---------------	--	-----------	--	-----------------

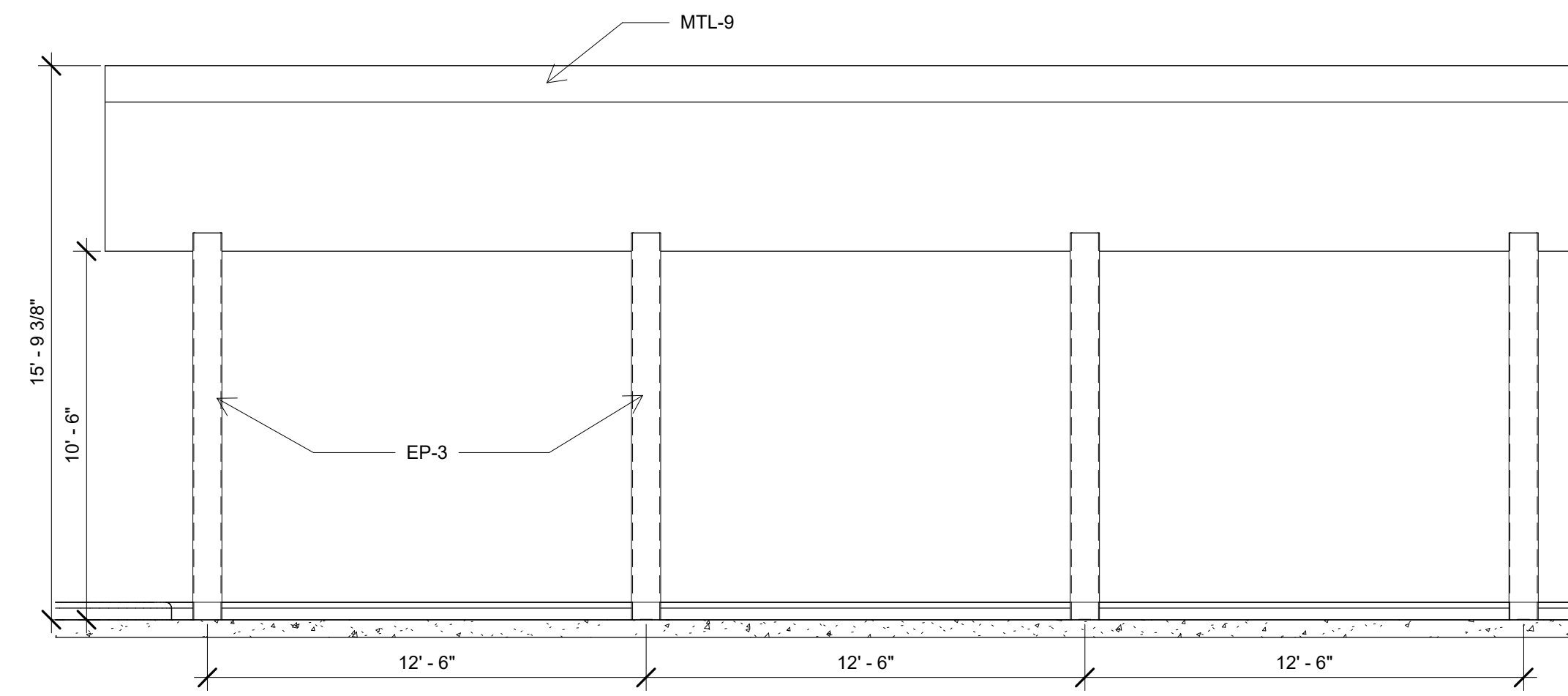




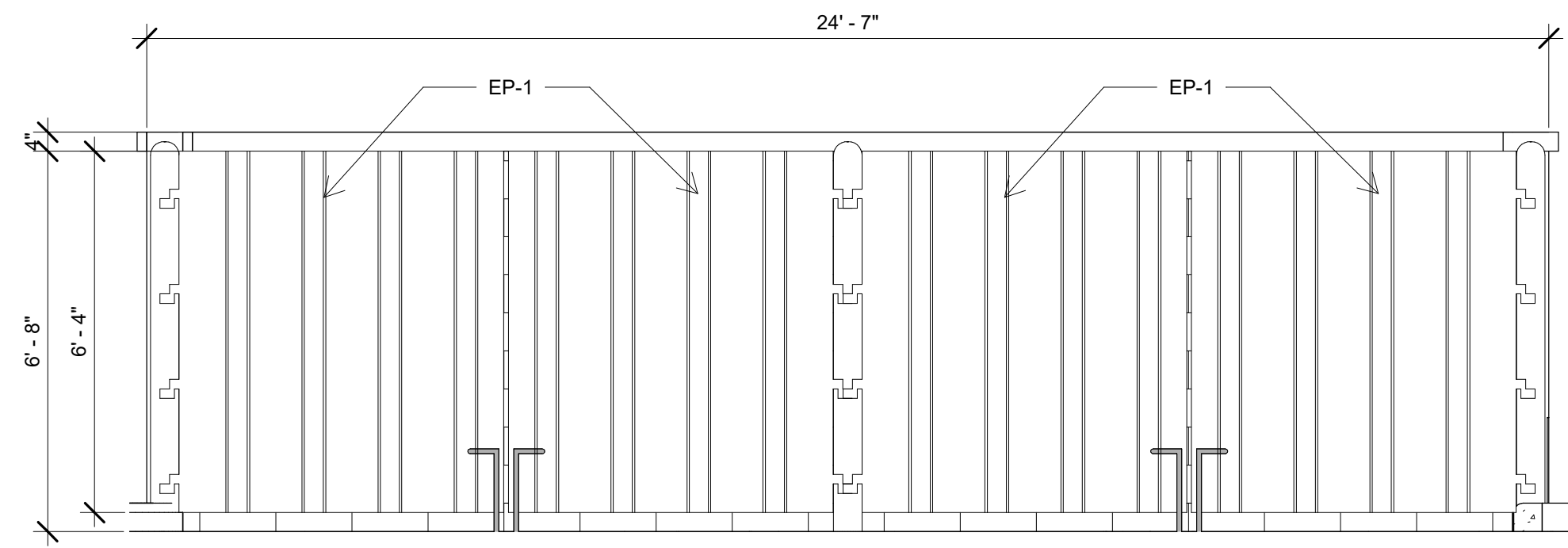
DUMPSTER ELEVATIONS (SIDE)
3/8" = 1'-0" **20**



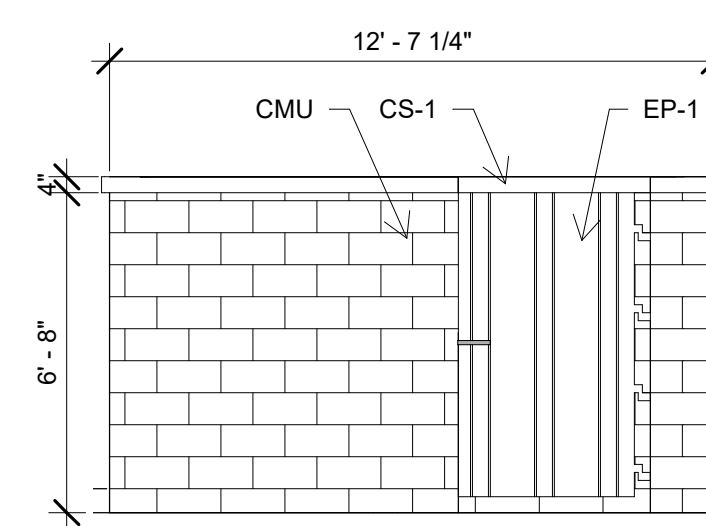
PAY STATION - ELEVATION
1/8" = 1'-0" **12**



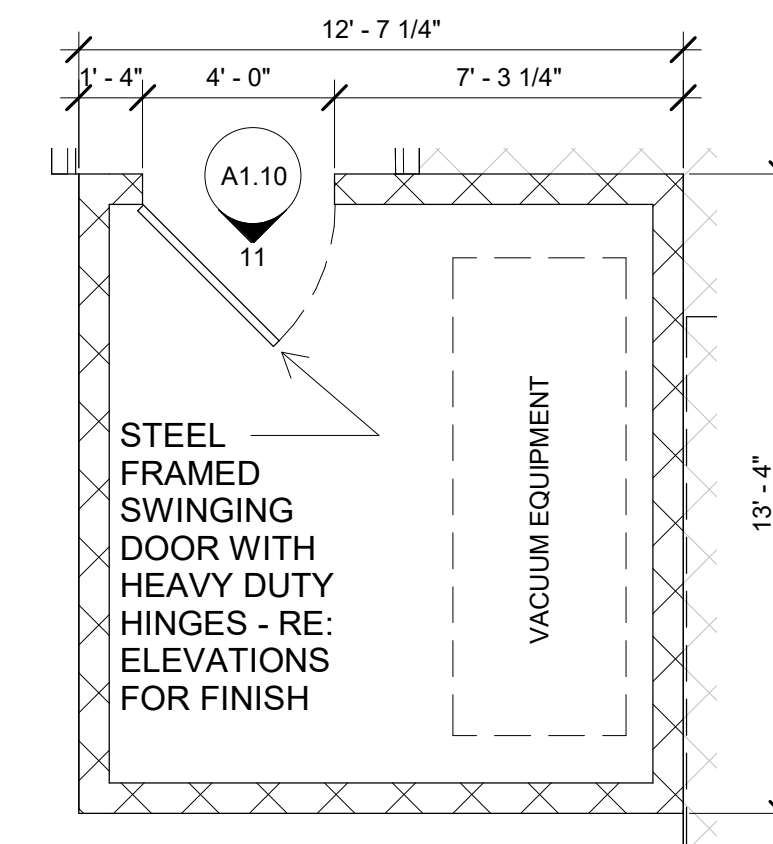
VACUUM CANOPY - FRONT ELEVATIONS
1/4" = 1'-0" **4**



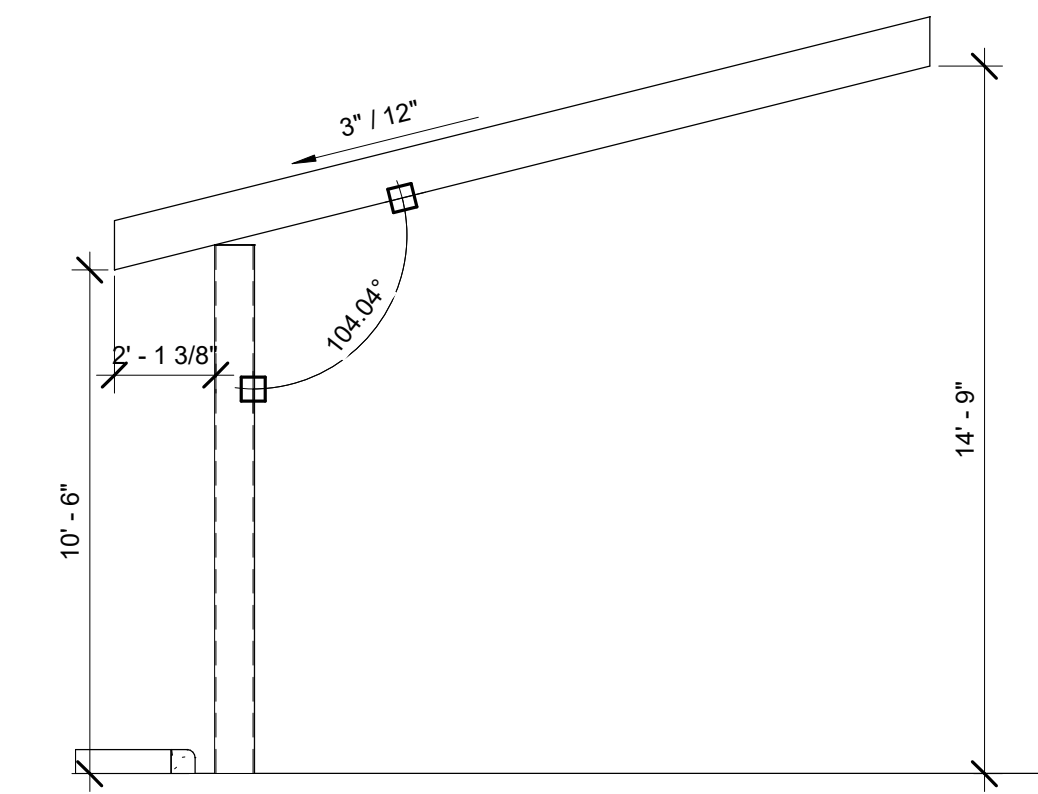
DUMPSTER ELEVATIONS (FRONT)
3/8" = 1'-0" **15**



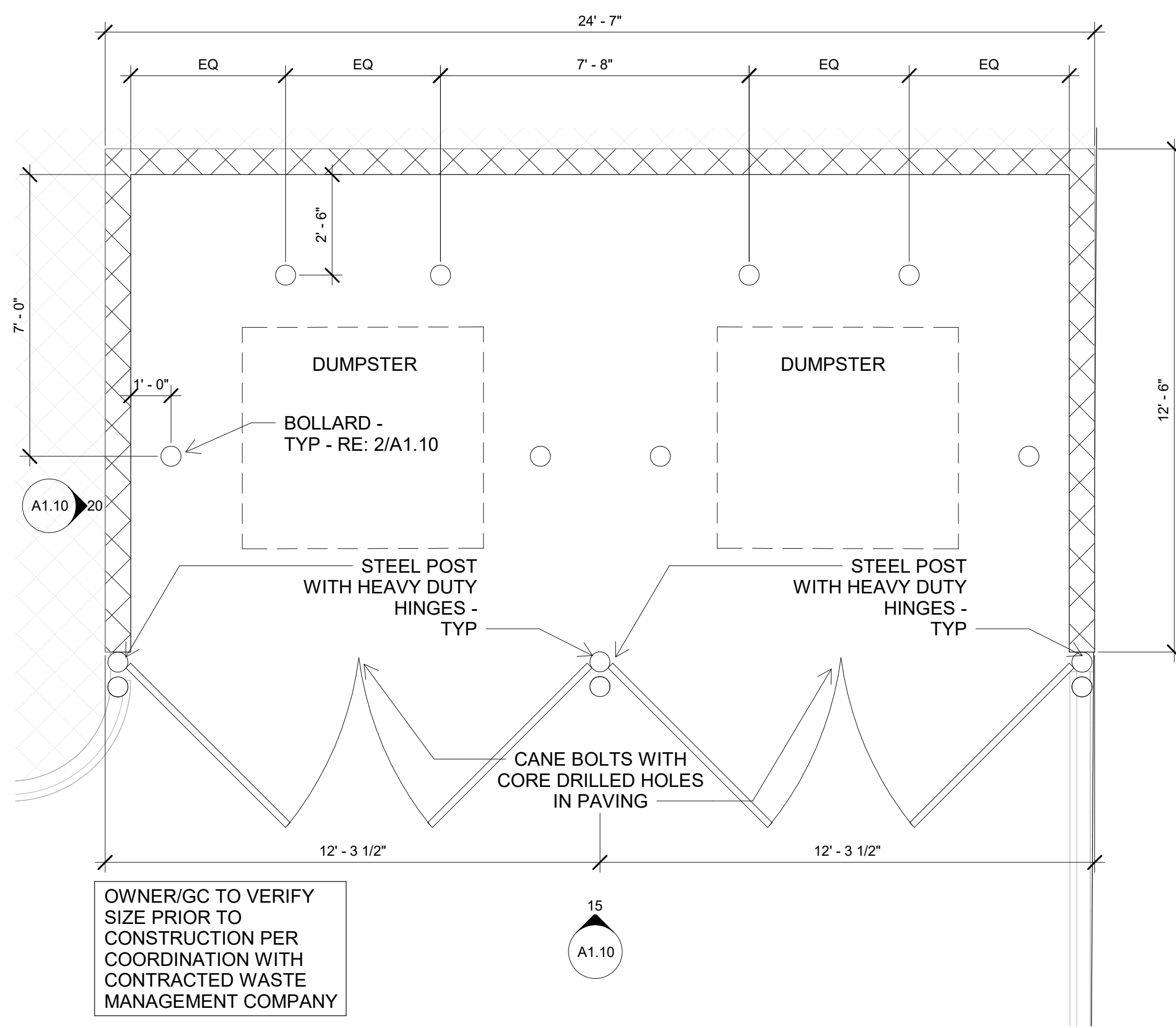
VACUUM - FRONT ELEVATION
1/4" = 1'-0" **11**



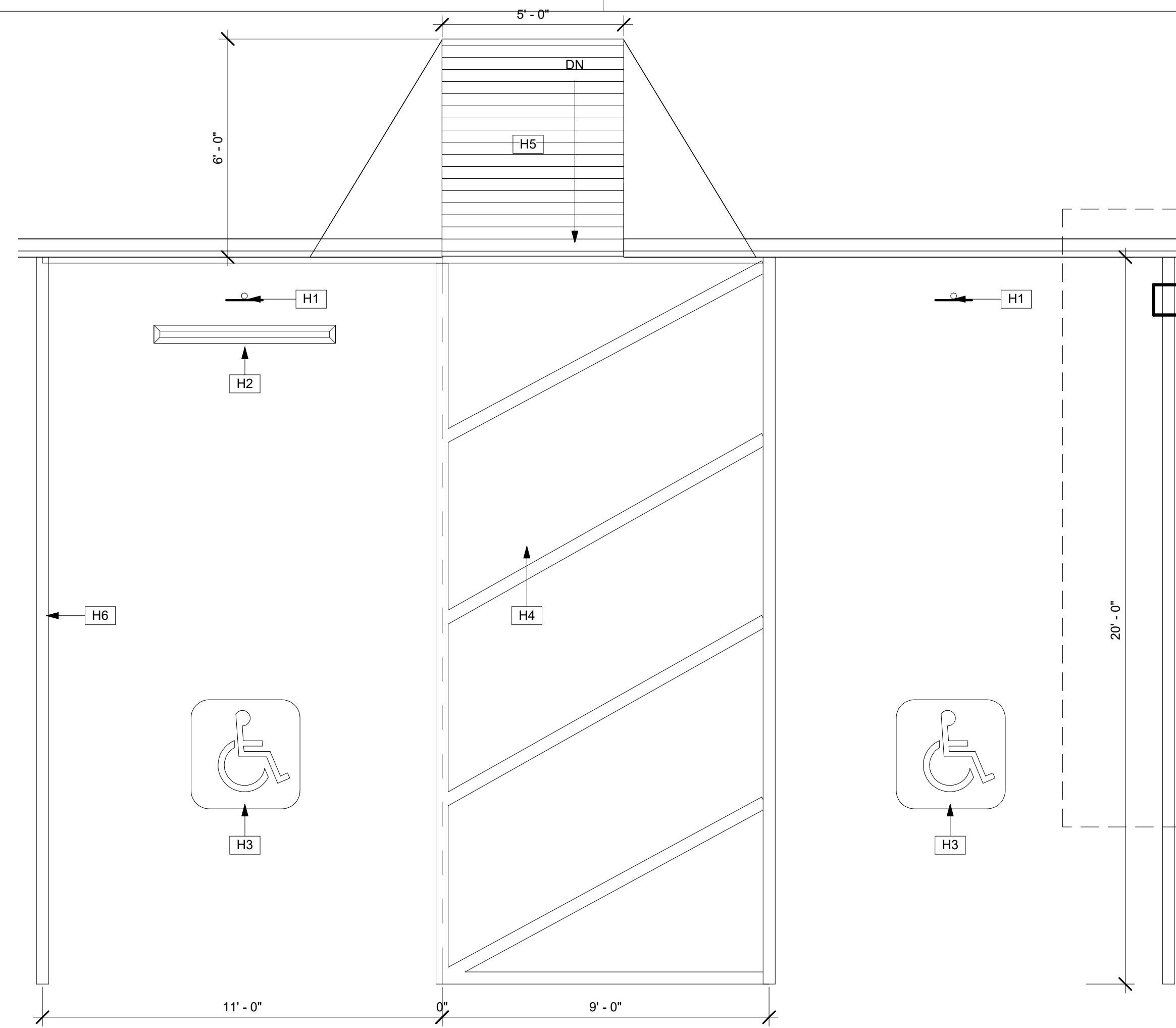
VACUUM ENCLOSURE
1/4" = 1'-0" **7**



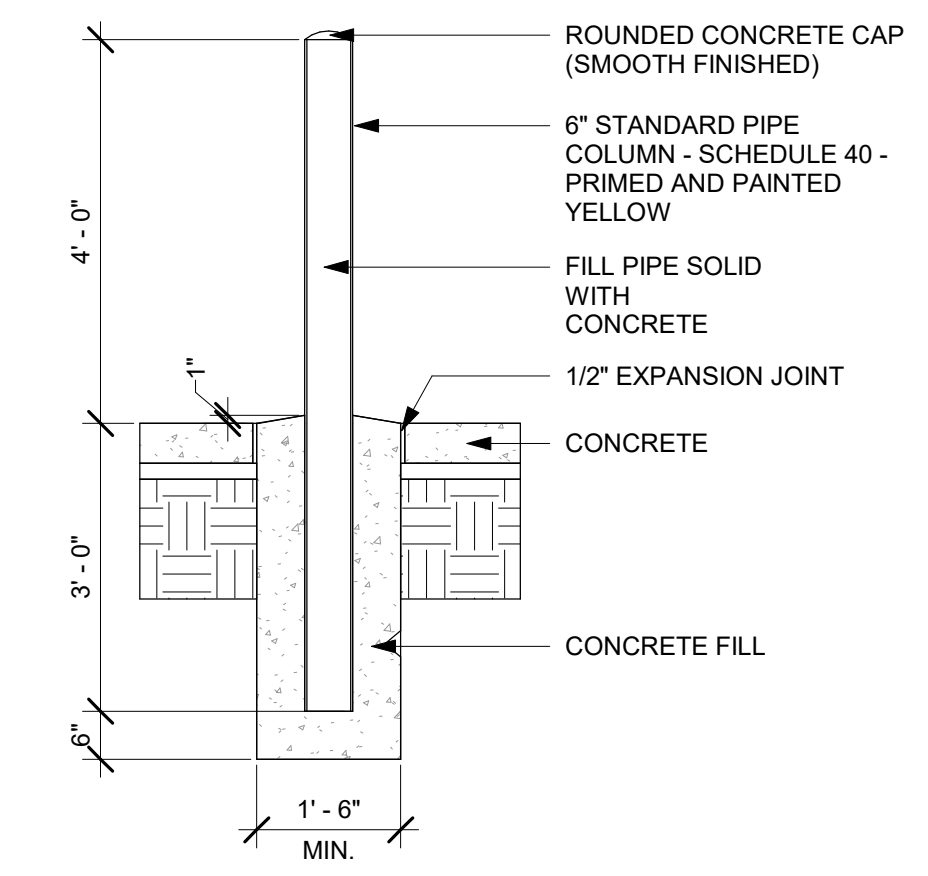
VACUUM CANOPY - SIDE ELEVATIONS
1/4" = 1'-0" **3**



DUMPSTER ENCLOSURE
3/8" = 1'-0" **13**



ENLARGED ADA PARKING PLAN
3/8" = 1'-0" **5**



BOLLARD DETAIL
1/2" = 1'-0" **2**

KEYNOTES - ENLARGED SITE PLAN	
#	NOTE
H1	PROVIDE ADA SIGN WHERE SHOWN - 8/A0.02
H2	PROVIDE 6" WIDE X 6" LONG CONCRETE WHEEL STOP AS SHOWN.
H3	PROVIDE PAINTED H.C. PAINTED SYMBOL - RE: 7/00.03
H4	PROVIDE PAINTED STRIPED LOADING ZONE AS SHOWN - STRIPING 4" WIDE EACH AT 45 DEGREES - 12" SPACES BETWEEN STRIPES
H5	PROVIDE CURB RAMP WITH 1:12 SLOPE AND DETECTABLE WARNING - 1/4" TOOLED JOINTS @ 2' O.C. ENTIRE WIDTH OF RAMP - STAIN CONCRETE ENTIRE WIDTH OF RAMP
H6	PARKING STRIPE - RE: CIVIL

GENERAL NOTES

1. REFERENCE ELECTRICAL DRAWINGS FOR POWER AND DATA LOCATIONS
2. BAY AND COLUMN DIMENSIONS SHOWN FOR REFERENCE ONLY - REFERENCE STRUCTURAL DRAWINGS FOR EXACT SIZES AND BUILDING SPECIFICATIONS
3. ALL DIMENSIONS ARE TO FINISHED FACE OF PARTITIONS UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLR" MUST BE PRECISELY MAINTAINED. VERIFY DIMENSIONS MARKED "V.I.F." PRIOR TO COMMENCEMENT OF CONSTRUCTION, AND NOTIFY THE ARCHITECT OF ANY INCONSISTENCIES. "ALIGN" SHALL MEAN TO ACCURATELY LOCATE FINISH FACES IN THE SAME PLANE.
4. ADJACENT WALL-MOUNTED DEVICES, SUCH AS OUTLETS, SWITCHES, THERMOSTATS, TO BE ALIGNED. CONTRACTOR TO COORDINATE ALIGNMENT WITH ACCESSIBILITY STANDARDS.
5. PROVIDE ELASTOMERIC COATING ON ALL EXTERIOR FACES OF CMU WALLS UNLESS NOTED OTHERWISE.
6. PROVIDE 1/4" STEP DOWN FROM INTERIOR TO EXTERIOR TYP., INCLUDING AT DOORS IN GARAGE LEVELS.
7. ALL SPOT ELEVATIONS ARE IN REFERENCE TO 0'-0" FINISH FLOOR (LEVEL ONE); REFERENCE ARCHITECTURAL SITE PLAN AND CIVIL DRAWINGS.
8. PROVIDE DOUBLE STUDS, BLOCKING, AND/OR DIAGONAL BRACING AS REQUIRED AT JAMBS OF DOORS, WALL OPENINGS, ETC.
9. SEAL ALL CRACKS AROUND STRUCTURAL MEMBERS, BRACING, PIPES, CONDUITS, DUCTS AND BETWEEN WALLS AND ROOF DECK WHERE AIR INFILTRATIONS BETWEEN CONDITIONED AND NON-CONDITIONED (EXTERIOR) SPACES MAY OCCUR (I.E. SEAL THE BUILDING ENVELOPE).

10. THE INSIDE FACE OF ALL DOOR JAMBS IS TO BE LOCATED 4 INCHES FROM AN CORNER UNLESS NOTED OR SHOWN OTHERWISE.
11. REFER TO SHEETS A5.00 FOR PARTITION TYPES, NOTES AND DETAILS.
12. REFER TO SHEETS 00.02 & 00.03 FOR ACCESSIBILITY STANDARDS.
13. CONCEAL ALL PIPING IN DRYWALL. WHERE PIPING IS TOO LARGE, WALLS ARE TO BE FURRED-OUT MINIMUM TO CONCEAL PIPING. INFORM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
14. PER IBC CHAPTER 12, WALLS AND PARTITIONS WITHIN TWO (2) FEET OF URINALS AND WATER CLOSETS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE TO A HEIGHT OF FOUR (4) FEET A.F.F., AND EXCEPT FOR STRUCTURAL ELEMENTS, THE MATERIALS USED IN SUCH WALLS SHALL BE OF A TYPE THAT IS NOT ADVERSELY AFFECTED BY MOISTURE. ACCESSORIES SUCH AS GRAB BARS, TOWEL BARS, PAPER DISPENSERS AND SOAP DISHES PROVIDED ON OR WITHIN SUCH WALLS SHALL BE INSTALLED AND SEALED TO PROTECT STRUCTURAL ELEMENTS FROM MOISTURE.
15. PER IBC CHAPTER 25, WHEN GYPSUM BOARD IS USED AS A BASE FOR TILE OR WALL PANELS FOR TUBS, SHOWER OR WATER CLOSET COMPARTMENT WALLS, WATER-RESISTANT CEMENT TILE BACKING BOARD SHALL BE USED AS A SUBSTRATE
16. CAR WASH EQUIPMENT AND EQUIPMENT LAYOUT ARE SHOWN FOR INFORMATION PURPOSES ONLY. REFER TO CAR WASHING EQUIPMENT VENDORS DRAWINGS FOR REQUIRED LAYOUT & SPACING.

PLUMBING FIXTURE CALCULATIONS

LAVATORY CALCULATIONS:
OFFICE AREA (B): 1 LAV / 40 OCCUPANTS (FOR THE FIRST 80),
1 PER 80 FOR THE REMAINDER

6 OCCUPANTS / 40 = 0.15 LAVATORY
TOTAL LAVATORIES REQUIRED = 1
TOTAL LAVATORIES PROVIDED = 1

WATER CLOSET CALCULATIONS:
OFFICE AREA (B): 1 WC / 25 OCCUPANTS (FOR THE FIRST 50),
1 PER 50 FOR THE REMAINDER

6 OCCUPANTS / 25 = 0.24 WATER CLOSETS
TOTAL WATER CLOSETS REQUIRED = 1
TOTAL WATER CLOSETS PROVIDED = 1

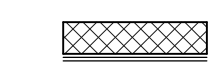
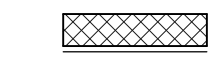
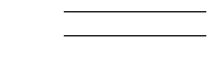

DRINKING FOUNTAIN CALCULATIONS:
SERVICE PROVIDED IN BREAK AREA

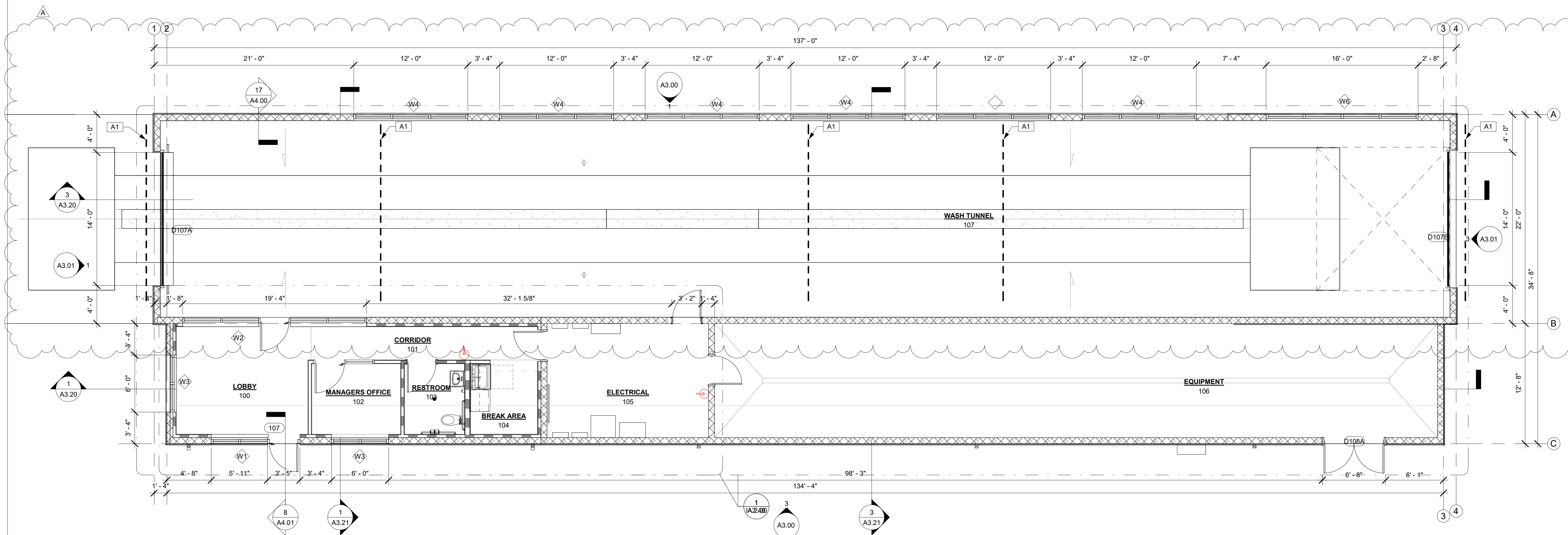
SERVICE SINK CALCULATIONS:
SERVICE PROVIDED IN BREAK AREA

KEYNOTES - FLOOR PLAN - FIRST FLOOR

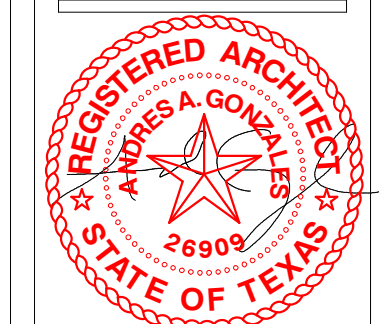
#	NOTE
A1	ARCH SIGNAGE "LOLLOPOP" REFER TO MANUFACTURERS DRAWINGS

WALL LEGEND - NEW

-  INDICATES NEW CMU - MLT-2
-  INDICATES NEW CMU - STUCCO FINISH
-  INDICATES NEW WALLS WITHOUT INSULATION
-  INDICATES NEW WALLS WITH INSULATION



FLOOR PLAN
3/16" = 1'-0" **1**

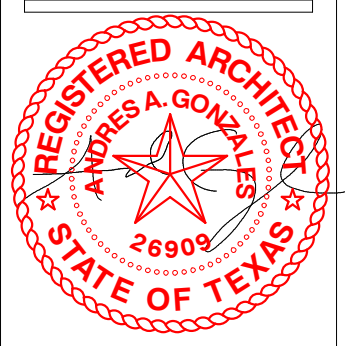


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SUDS DELUXE CAR WASH
SAN MARCOS
IH 35 & CHISOS
SAN MARCOS, TEXAS 78666

PM: AG DE: DS
PROJECT:
M22-02-B0035
SHEET:
A2.00
SHELL FLOOR PLAN

1 09/09/22 ISSUED FOR PERMIT
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SUDS DELUXE CAR WASH
SAN MARCOS

PM: AG DE: DS
PROJECT:
M22-02-B0035
SHEET:
A2.20
REFLECTED CEILING PLAN

1H 35 & CHISOS
SAN MARCOS, TEXAS 78666

REFLECTED CEILING MEP NOTES

1. REFER TO MEP DRAWINGS FOR INFORMATION PERTAINING TO LIGHTING, POWER, AND COMMUNICATIONS.

REFER TO MEP DRAWINGS FOR INFORMATION PERTAINING TO HVAC DEVICES IN OR ABOVE THE CEILING.

REFLECTED CEILING NOTES

1. INFORM ARCHITECT IMMEDIATELY OF CONFLICTS DISCOVERED ON SITE BETWEEN DRAWINGS AND FIELD CONDITIONS. OBTAIN CLARIFICATION OR RESOLUTION OF CONFLICTS PRIOR TO PROCEEDING WITH WORK IN QUESTION.

2. REPLACE ALL TILE AND GRID DAMAGED DURING THE COURSE OF CONSTRUCTION PRIOR TO TENANT MOVE-IN

3. LOCATIONS OF LIGHT FIXTURES, HVAC DEVICES AND OTHER CEILING-MOUNTED ELEMENTS ON ARCHITECTURAL REFLECTED CEILING PLANS HAVE PRECEDENCE OVER LOCATIONS SHOWN ON M.E.P. DRAWINGS. CONTRACTOR TO REPORT ANY CONFLICTS OR DISCREPANCIES IMMEDIATELY PRIOR TO INSTALLATION OF CEILING GRID OR FIXTURES/DEVICES.

4. CEILING AND SOFFIT HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS

5. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ADDITIONAL FIRE ALARM DEVICES, VISUAL ALARM LIGHTS, SPEAKERS, AND WIRING THAT ARE REQUIRED TO MEET THE INTERNATIONAL BUILDING CODE, LIFE SAFETY CODE REQUIREMENTS, AND ACCESSIBILITY REQUIREMENTS.

6. ROOMS AND SPACES WITH EXPOSED STRUCTURE AND DECK OR NO FINISHED CEILING SHALL BE PAINTED WITH A DRYFALL PAINT UNLESS NOTED OTHERWISE. FACTORY PREFINISHED DEVICES SUCH AS SPRINKLER HEADS, LIGHT FIXTURES, GRILLES, SMOKE DETECTORS, FINISHED ARCHITECTURAL MATERIALS, ETC. SHALL NOT BE PAINTED.

A2.10 - MATERIAL SCHEDULE - CEILING

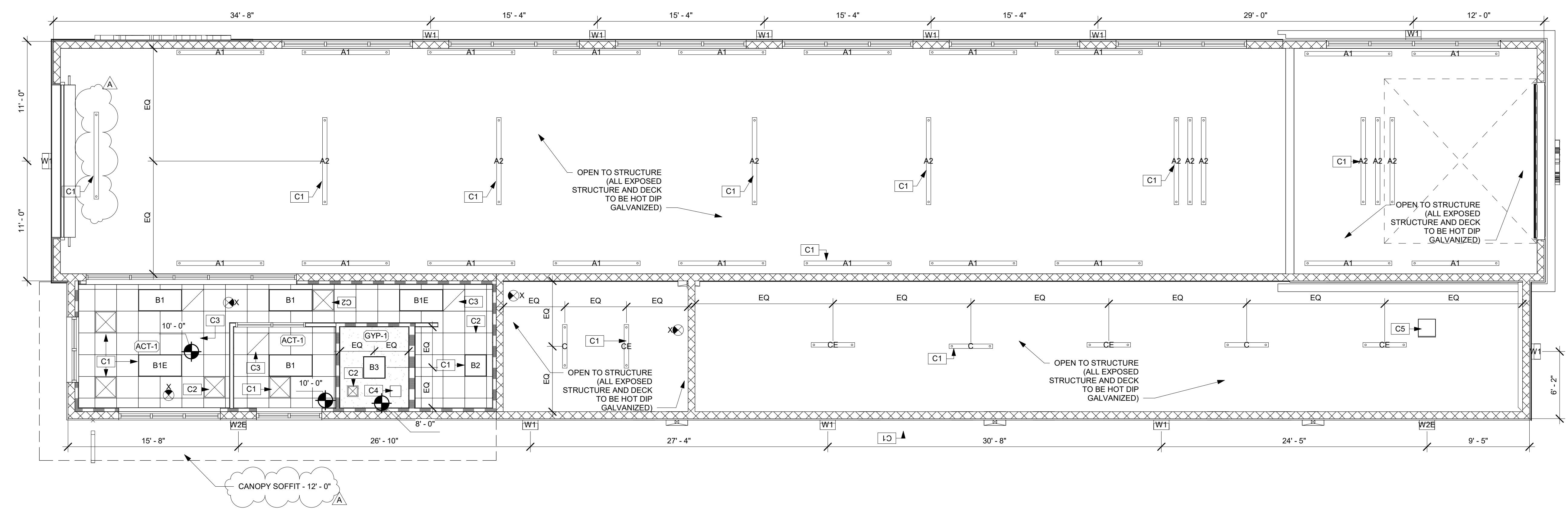
MARK	DESCRIPTION	COMMENTS
ACT-1	2X2 ACOUSTICAL TILE	
GYP-1	GYPSUM CEILING	

LIGHTING FIXTURE SCHEDULE

Type Mark	DESCRIPTION	MOUNTING
A1	LINEAR FIXTURE - WET LOCATION	SURFACE
A2	LINEAR FIXTURE - WET LOCATION	SURFACE
B1	2X2 LINEAR FIXTURE	RECESSED
B1E	2X2 LINEAR FIXTURE - EMERGENCY	RECESSED
B2	2X2 LINEAR FIXTURE	RECESSED
B3	2X2 LINEAR FIXTURE	SURFACE
C	4' LINEAR FIXTURE	SURFACE
CE	4' LINEAR FIXTURE - EMERGENCY	SURFACE
W1	WALL PACK	SURFACE
W2E	WALL PACK - EMERGENCY	SURFACE
X	EXIT SIGN	CEILING

KEYNOTES - CEILING PLAN - FIRST FLOOR

#	NOTE
C1	LIGHT FIXTURE - RE: MEP
C2	SUPPLY AIR DIFFUSER - RE: MEP
C3	RETURN AIR DIFFUSER - RE: MEP
C4	EXHAUST FAN - RE: MEP
C5	ROOF MOUNTED EXHAUST FAN - RE: MEP



REFLECTED CEILING PLAN

3/16" = 1'-0" 1

ROOFING AND DRAINAGE SYSTEM

ROOF TYPE:

ROOF TYPE A: TPO ROOF MEMBRANE - 60 MIL, 20YR WARRANTY, RIGID INSULATION BOARD AS SCHEDULED, MECHANICALLY FASTENED, WHITE TPO MEMBRANE, ROOF TO MEET ALL IECC REQUIREMENTS.

ROOF TYPE B: STANDING SEAM METAL ROOF - RE: ROOF MANUFACTURERS SPECIFICATIONS

SOLAR REFLECTANCE: 0.74 MINIMUM REQUIRED
THERMAL EMITTANCE: 0.85 MINIMUM REQUIRED

DRAINAGE SYSTEM:

PROVIDE CONTINUOUS PREFINISHED METAL BOX GUTTER WITH DOWNSPOUTS AT STANDING SEAM METAL ROOF. DOWNSPOUTS TO SURFACE DRAIN INTO STORM SYSTEM UNLESS NOTED OTHERWISE ON DRAWINGS.

PROVIDE SCUPPERS, COLLECTOR BOXES, AND OVER FLOWS AS NOTED ON ROOF PLAN.

1. ROOF MOUNTED EQUIPMENT TO BE PLACED IN A LOCATION SO THAT THEY ARE NOT VISIBLE FROM THE STREET - REFERENCE MECHANICAL DRAWINGS FOR LOCATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL ROOF MOUNTED EQUIPMENT WITH STRUCTURAL ENGINEER OF RECORD FOR NECESSARY BRACING AND SUPPORT PRIOR TO INSTALL.

CANOPY NOTES

1. CANOPIES TO BE SUBMITTED UNDER A SEPARATE PERMIT BY THE CANOPY MANUFACTURER - FOR CANOPY STRUCTURAL DETAILS REFERENCE STRUCTURAL.
2. DO NOT INSTALL SCUPPERS, DOWNSPOUTS, OVERFLOW DRAIN OUTLETS, OR OTHER WATER DISCHARGE POINTS OVER DOORS OR SIDEWALKS AT BUILDING ENTRY POINTS. IF THE MANUFACTURER SHOP DRAWINGS CONFLICT WITH THE ABOVE REQUIREMENT, CONTRACTOR IS RESPONSIBLE FOR NOTIFYING ARCHITECT FOR DIRECTION PRIOR TO INSTALLING.

ROOF PLAN NOTES

1. FASTENING OR ATTACHMENT OF WOOD BLOCKING, NAILERS, STEEL ANGLES, DECKING AND SHEET METAL SHALL BE IN ACCORDANCE WITH ANSIS/FPI ES-1.
2. ALL WOOD BLOCKING AND LUMBER SHALL BE FIRE RETARDANT TREATED. STAGGER JOINTS WHEN STACKING LUMBER IN MULTIPLE LAYERS.
3. INSTALL A 1/2-INCH PER FOOT MINIMUM SLOPED CONTINUOUS SUBSTRATE BENEATH ALL SHEET METAL CAPS AT COPINGS AND EXPANSION JOINTS TO PROMOTE DRAINAGE. SLOPE THE TOP OF THE COPING TOWARDS THE ROOF SIDE OF THE BUILDING.
4. PROVIDE STAINLESS STEEL FASTENERS FOR LUMBER, UNLESS SPECIFIED OTHERWISE. PROVIDE GASKETED SERIES STAINLESS STEEL FASTENERS AT ALL EXPOSED LOCATIONS.
5. FURNISH AND INSTALL PLYWOOD IN ACCORDANCE WITH THE AMERICAN PLYWOOD ASSOCIATION.
6. SHEET METAL WORK SHALL CONFORM TO LATEST S.M.A.C.N.A. STANDARDS. SOLDER ALL SEAMS AND CONNECTIONS.
7. PROVIDE CONTINUOUS 22 GA. GALVANIZED STEEL CLEATS WITH FASTENERS SPACED 6-INCHES ON CENTER AT ALL SHEET METAL EDGE METAL, FASCIA AND COPING. FOR METAL OTHER THAN GALVANIZED STEEL, INSTALL CONTINUOUS CLEAT ONE GAUGE HEAVIER THAN SHEET METAL COMPONENT BEING ATTACHED. STAGGER CLEAT JOINTS FROM JOINTS OF ATTACHED COMPONENTS.
8. PROVIDE BACK-UP PLATES AND COVER PLATES AT ALL EDGE METAL/FASCIA JOINTS.
9. PROVIDE ADHERED SINGLE PLY ROOFING MEMBRANE CONTINUOUS BETWEEN SHEET METAL AND LUMBER.
10. PROVIDE MINIMUM 1" TALL STANDING SEAM JOINTS AT ALL COPING CAPS AND EXPANSION JOINTS.

11. HEM ALL EXPOSED SHEET METAL EDGES A MINIMUM OF 1/2".

12. PROVIDE SHEET METAL CORNERS, INTERSECTIONS, TERMINATIONS WITH JOINTS SPACED A MINIMUM OF 18" IN EITHER DIRECTION AT ALL COPING CAPS AND COUNTERFLASHINGS.

13. DO NOT INSTALL SCUPPERS, DOWNSPOUTS, OVERFLOW DRAIN OUTLETS, OR OTHER WATER DISCHARGE POINTS OVER ANY OPENINGS IN THE BUILDING SUCH AS DOORS, WINDOWS, OR LOUVERS. IF THE DRAWINGS CONFLICT WITH THE ABOVE REQUIREMENT, CONTRACTOR IS RESPONSIBLE FOR NOTIFYING ARCHITECT FOR DIRECTION PRIOR TO INSTALLING.

14. PROVIDE 1/2" PER FOOT TAPERED CRICKETS WHERE NECESSARY FOR PROPER DRAINAGE AT ALL DRAINS, SCUPPERS, WALLS, AND CURBS WIDER THAN 12".

15. MINIMUM TOTAL INSULATION AND COVERBOARD THICKNESS AT DRAINS AND EDGES IS 1.5". UNLESS OTHERWISE SPECIFIED OR SHOWN IN DRAWINGS.

16. PROVIDE A MINIMUM BASE FLASHING HEIGHT OF 8" ABOVE THE PLANE OF THE FINISHED ROOF AT THE PEAK OF THE UPSLOPE CRICKET AT ALL CURBS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING IF GREATER THAN 8" BASE FLASHING HEIGHT IS SPECIFIED OR SHOWN IN DRAWINGS.

17. CLEAN AND PRIME ALL SURFACES RECEIVING ELASTOMERIC SEALANT PRIOR TO INSTALLATION OF SEALANT. MATCH SEALANT COLOR TO PRE-FINISHED METAL SEALANT IS BEING APPLIED TO, OR TO SUBSTRATE FOR GALVANIZED METAL. SUBMIT SEALANT COLORS FOR OWNER APPROVAL PRIOR TO INSTALLATION.

18. INSTALL ROOF PROTECTION PADS AS SHOWN IN THE DRAWINGS, AND AT A MINIMUM, AROUND ALL ROOF MOUNTED MECHANICAL EQUIPMENT LOCATED WITHIN THE SCOPE OF WORK, AT ALL ROOF ACCESS POINTS, INCLUDING DOORWAYS AND LADDERS, AND BETWEEN ROOF ACCESS POINTS AND THE ROOF MOUNTED EQUIPMENT.

PENETRATION POCKETS ARE PROHIBITED.

KEYNOTES - CEILING PLAN - FIRST FLOOR

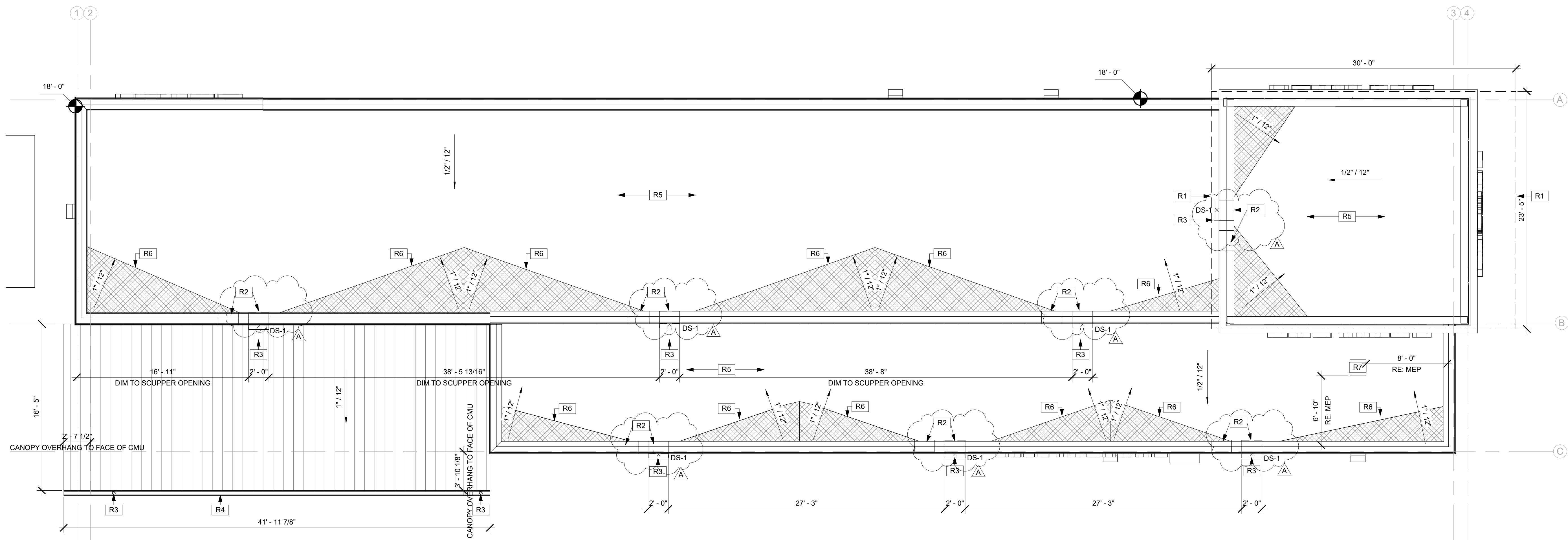
#	NOTE
R1	EDGE OF CANOPY ABOVE
R2	THRU-WALL SCUPPER, PROVIDE THRU WALL OVERFLOW WITHIN 24" OF SCUPPER AND 2" ABOVE ROOF LINE.
R3	PREFINISHED DOWNSPOUT - RE: ELEVATIONS
R4	PREFINISHED GUTTER - RE: ELEVATIONS
R5	TPO MEMBRANE ROOF SYSTEM, WHITE
R6	CRICKET FORMED WITH TAPERED ROOF INSULATION
R7	ROOF MOUNTED EXHAUST FAN - RE: MEP

ROOF DRAINAGE CALCULATIONS

MARK	ROOF AREA	IN2 OF DRAINAGE REQUIRED [ROOF AREA/150]
OFFICE AREA	692 SF	4.61 in ²
SERVICE AREA	1,128 SF	7.52 in ²
TUNNEL	2,322 SF	15.48 in ²
LOW TOWER	463 SF	3.09 in ²
HIGH TOWER	726 SF	4.84 in ²
Total: 5	5,331 SF	35.54 in ²

DOWNSPOUT SCHEDULE AND CALCULATIONS

MARK	COUNT	DEPTH	WIDTH	IN2 OF DRAINAGE PROVIDED	COMMENTS
DS-1	3	0' - 4"	0' - 4"	48.00 in ²	
DS-2	1	0' - 4"	0' - 4"	16.00 in ²	
TOTALS: 4	4			64.00 in ²	

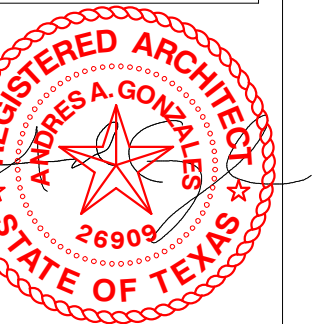


ROOF PLAN

3/16" = 1'-0"

1

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SAN MARCOS

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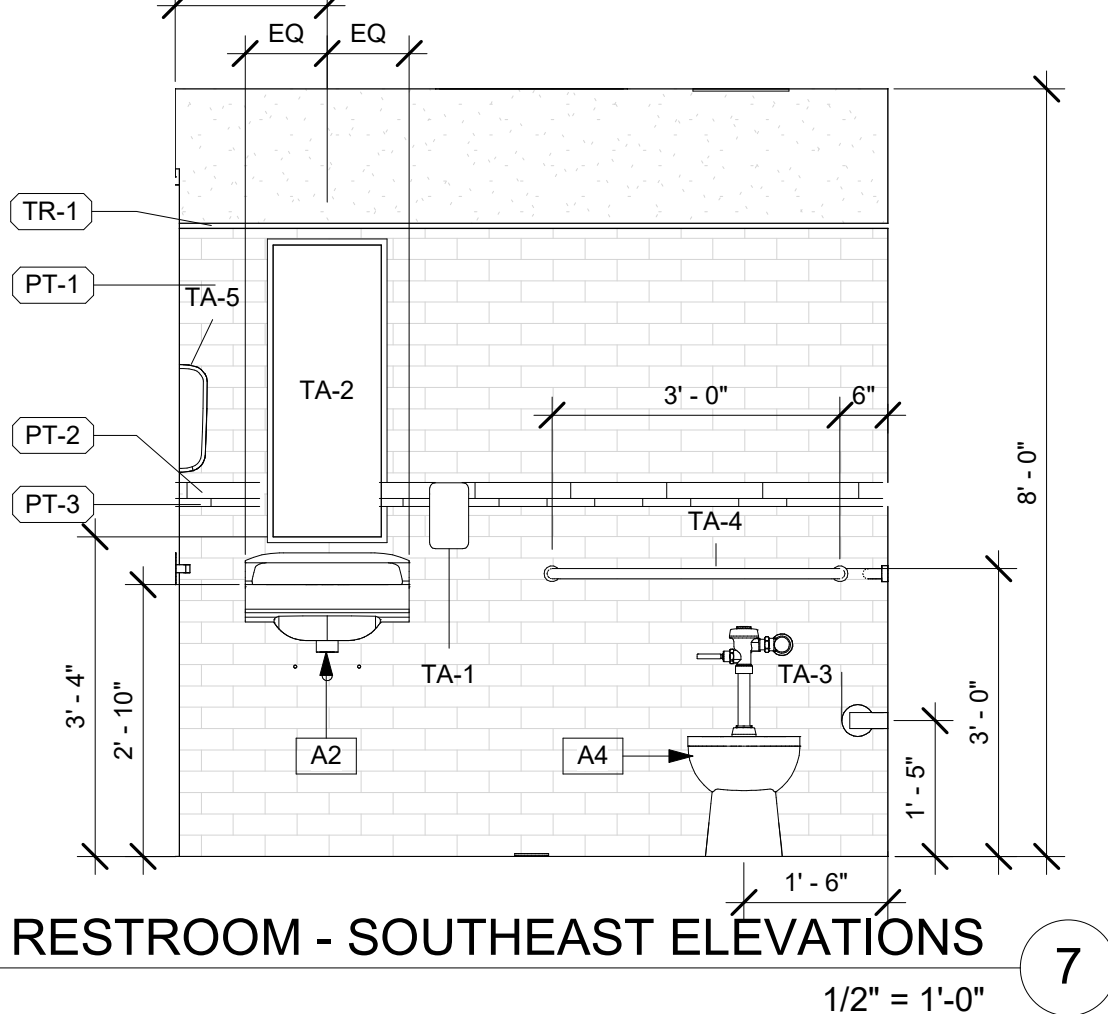
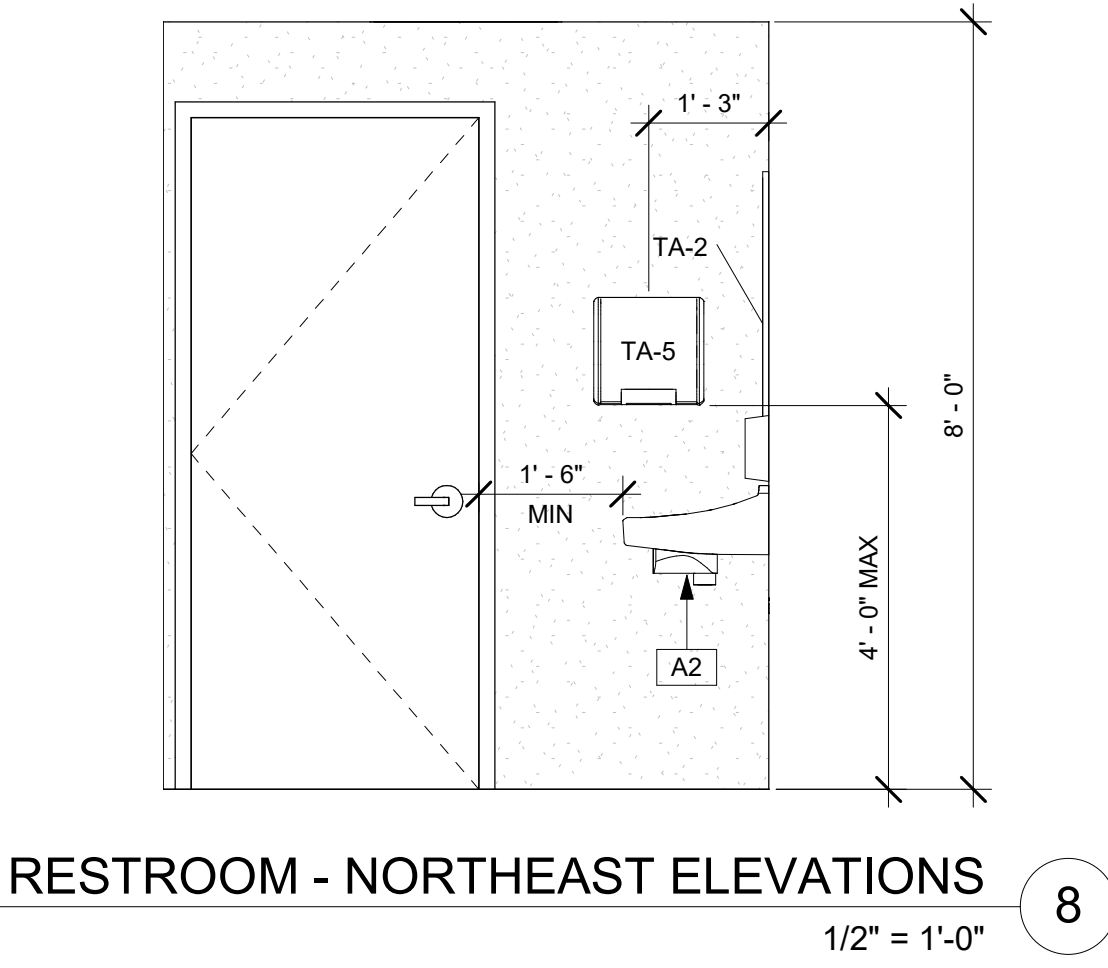
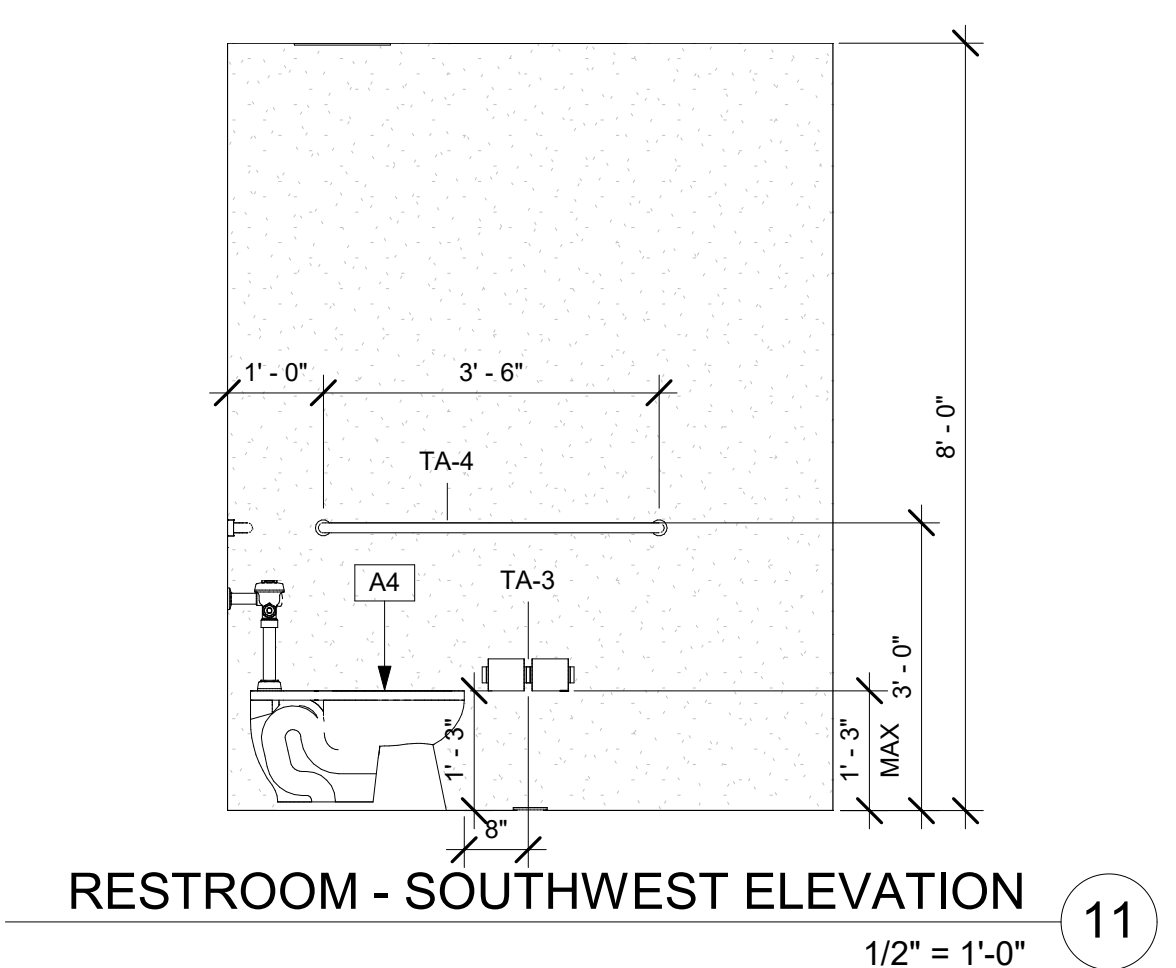
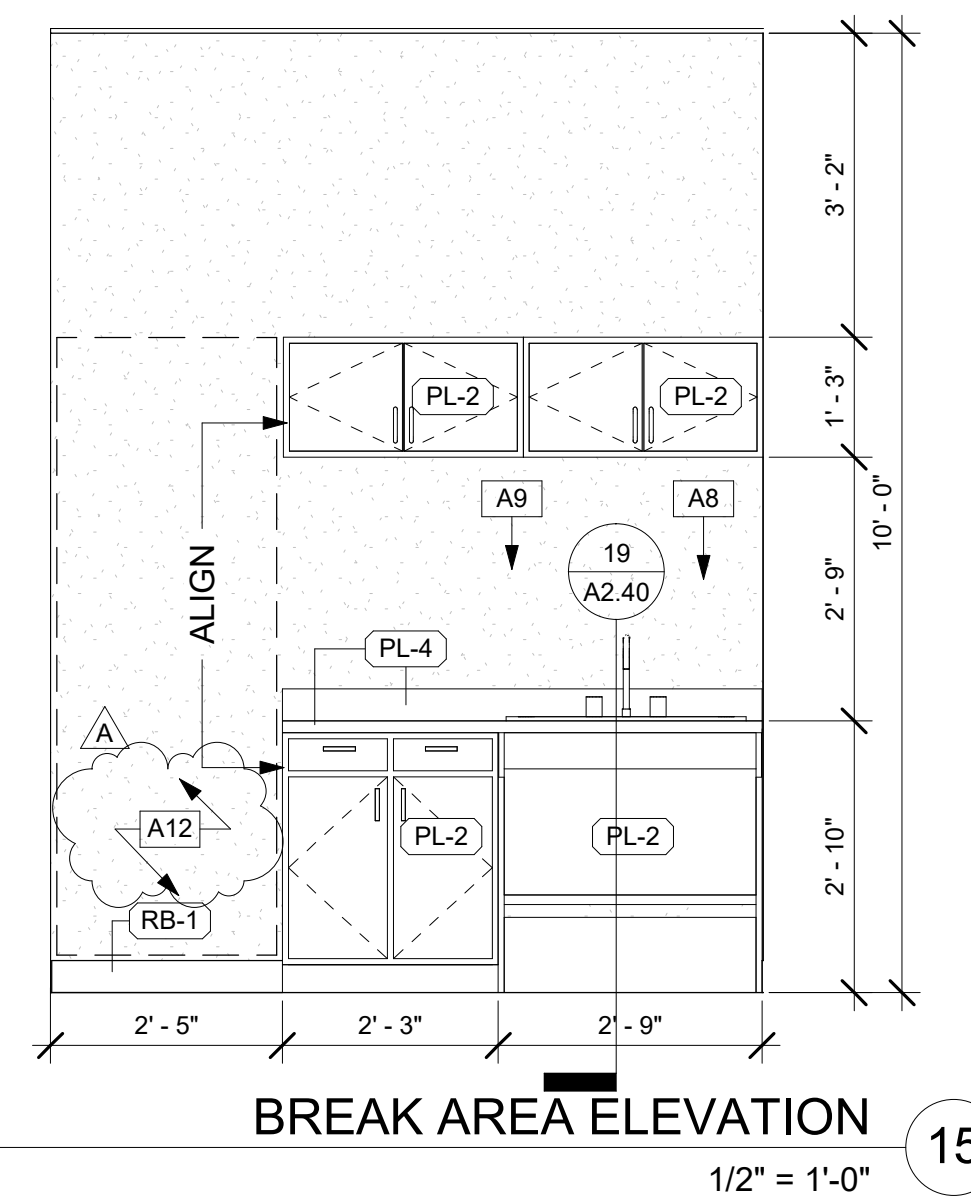
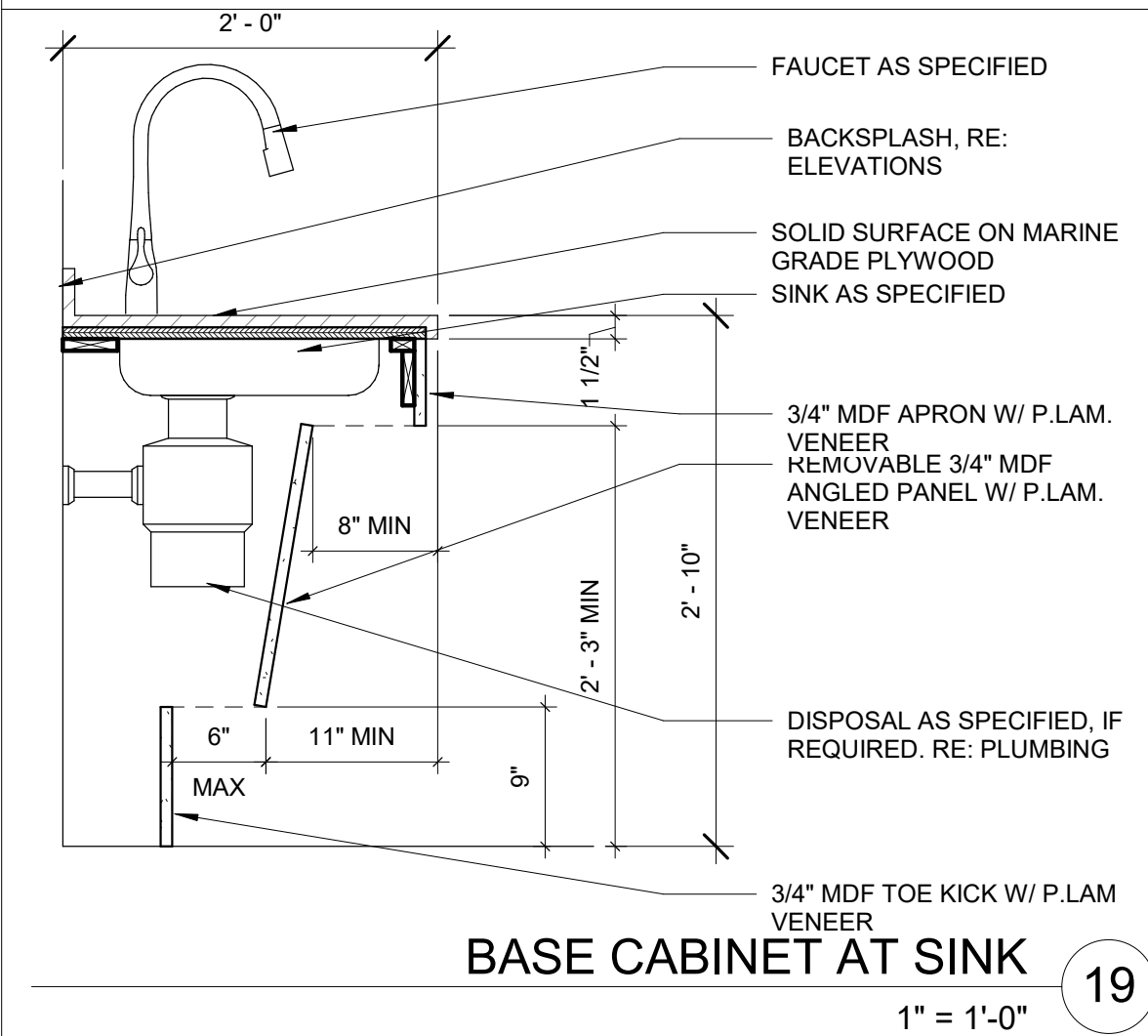
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SHEET:

A2.30

ROOF PLAN

IN: 35 & CHISOS
SAN MARCOS, TEXAS 78666

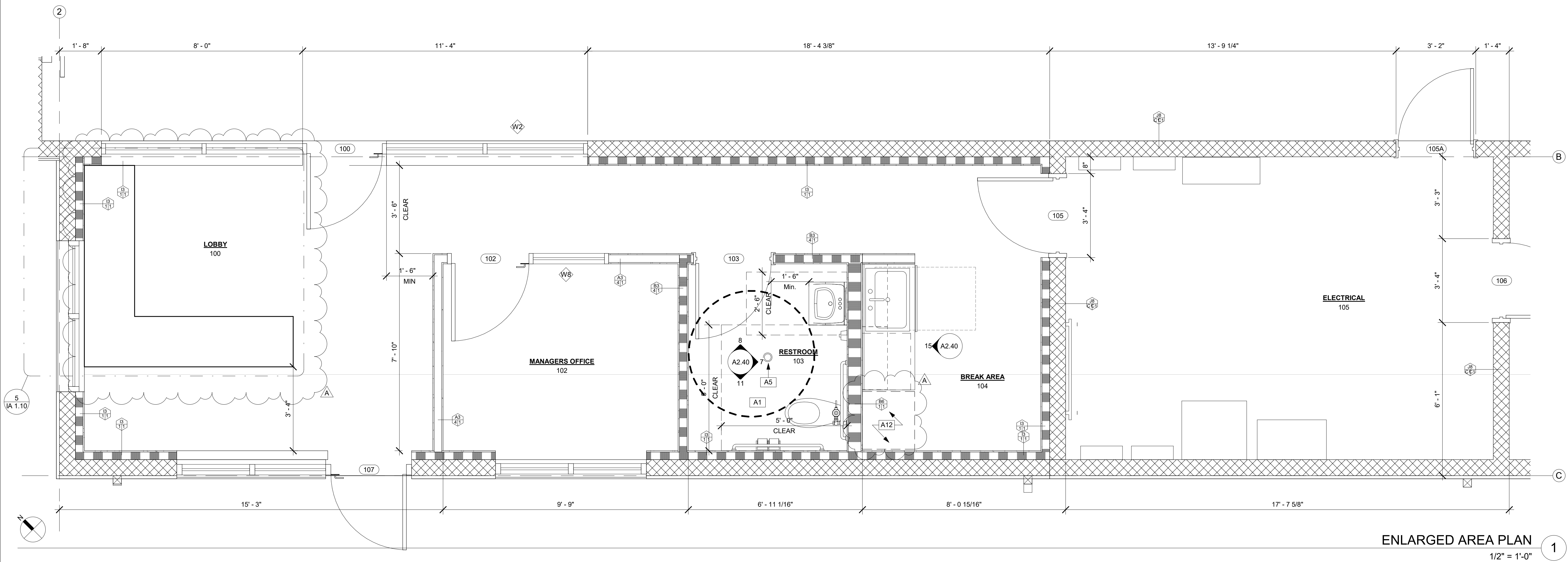


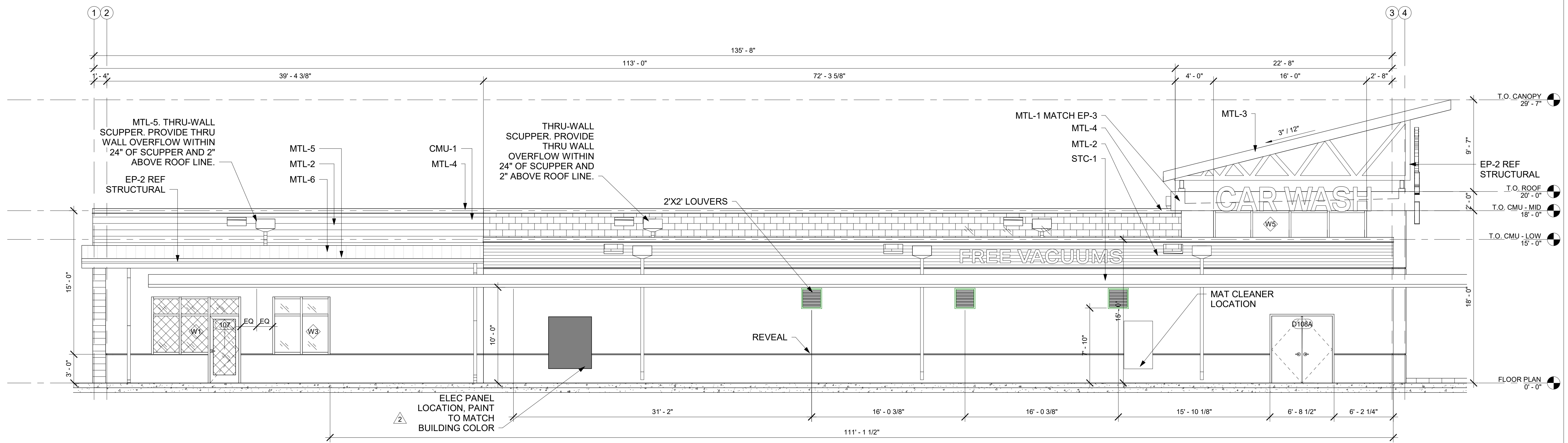
- RESTROOM NOTES**
- ALL RESTROOMS MUST BE COMPLIANT WITH TASI/ADA REQUIREMENTS.
 - PROVIDE MOTION SENSOR RESTROOM ACCESSORIES INCLUDING PAPER TOWEL DISPENSERS AND SOAP DISPENSERS.
 - PROVIDE ALL OTHER NECESSARY RESTROOM ACCESSORIES INCLUDING TOILET PAPER DISPENSERS, SANITARY NAPKIN DISPOSAL, TOILET SEAT COVER DISPENSERS, ADA GRAB BARS, MIRRORS, RECESSED TRASH RECEPTACLES AND CHANGING TABLES.

TOILET ACCESSORY SCHEDULE		
MARK	DESCRIPTION	COUNT
TA-1	SOAP DISPENSER (O.F.C.I.)	1
TA-2	WALL MOUNTED MIRROR	1
TA-3	TOILET PAPER DISPENSER (O.F.C.I.)	1
TA-4	ADA GRAB BARS	1
TA-5	HAND DRYER	1

- ENLARGED PLAN KEY NOTES**
- | # | NOTE |
|-----|--|
| A1 | ARCH SIGNAGE "LOLLIPOP" REFER TO MANUFACTURERS DRAWINGS |
| A2 | PROVIDE WALL MOUNTED SINK AND FAUCET AS SHOWN |
| A4 | PROVIDE FLOOR MOUNTED TOILET WITH FLUSH VALVE AS SHOWN |
| A5 | PROVIDE FLOOR DRAIN AS SHOWN |
| A12 | BOTTLED WATER COOLER LOCATION; PROVIDED BY OWNER APPROVED BY ARCHITECT |

- WALL LEGEND - NEW**
- INDICATES NEW CMU - MLT-2
 - INDICATES NEW CMU - STUCCO FINISH
 - INDICATES NEW WALLS WITHOUT INSULATION
 - INDICATES NEW WALLS WITH INSULATION

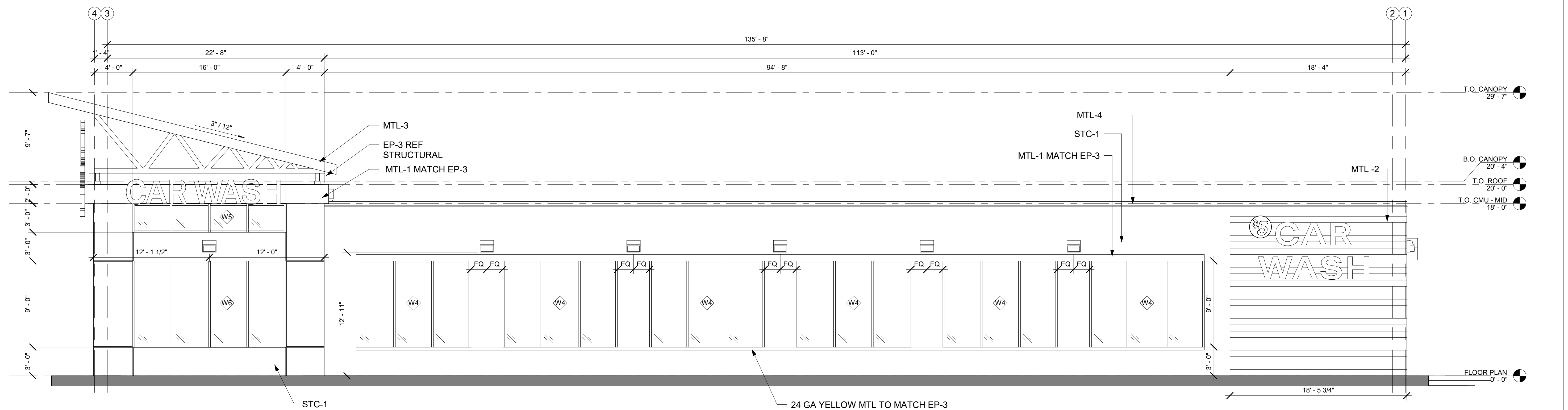




SOUTH ELEVATION

3/16" = 1'-0"

3

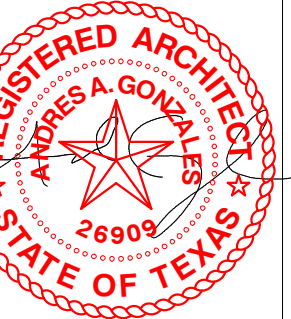


NORTH ELEVATION

3/16" = 1'-0"

1

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 2. 11/08/22 COR COMMENT RESPONSE #1



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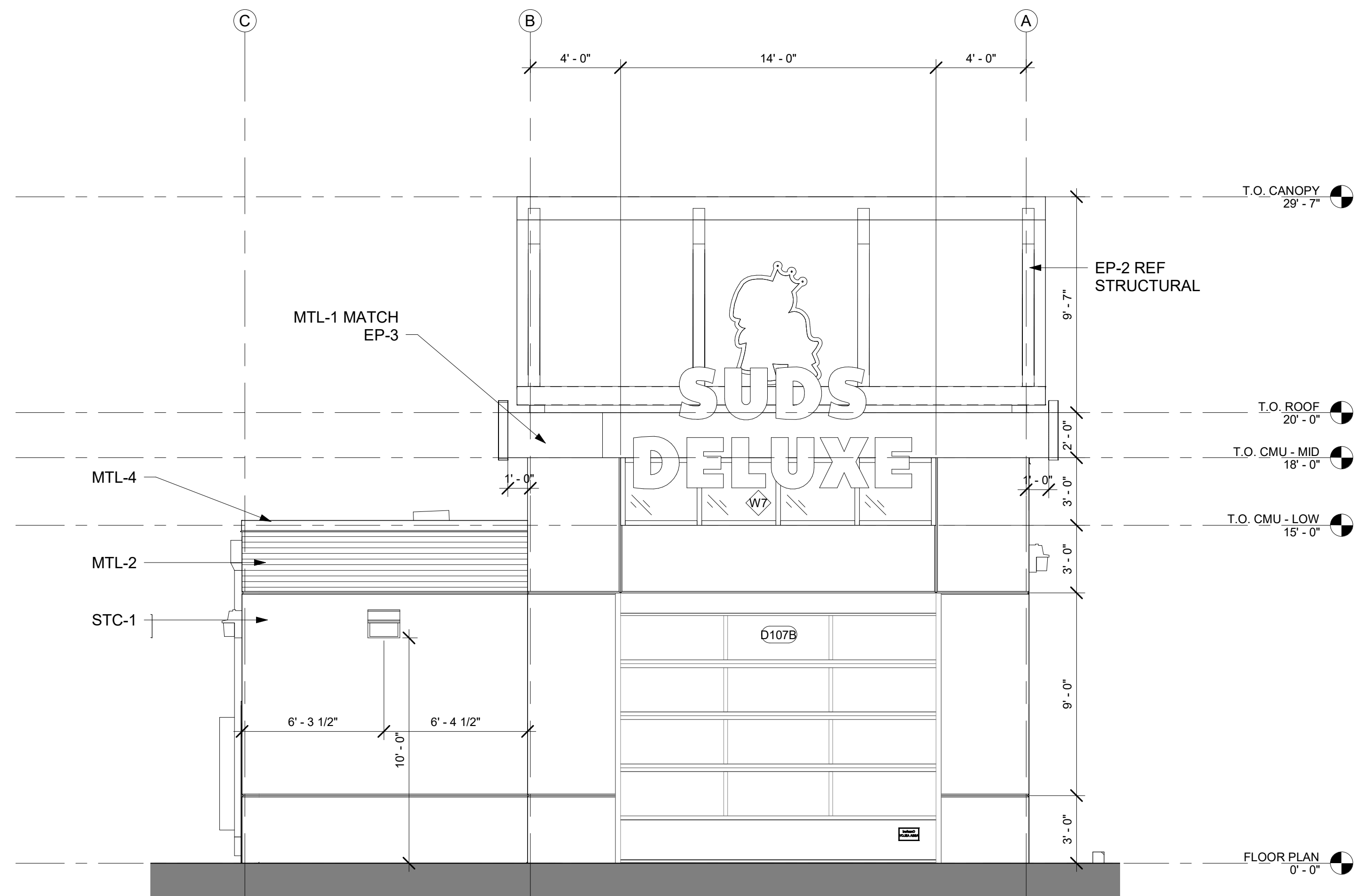
PROJECT:
 M22-02-B0035

SHEET:

A3.00

N/S ELEVATIONS

IH 35 & CHISOS
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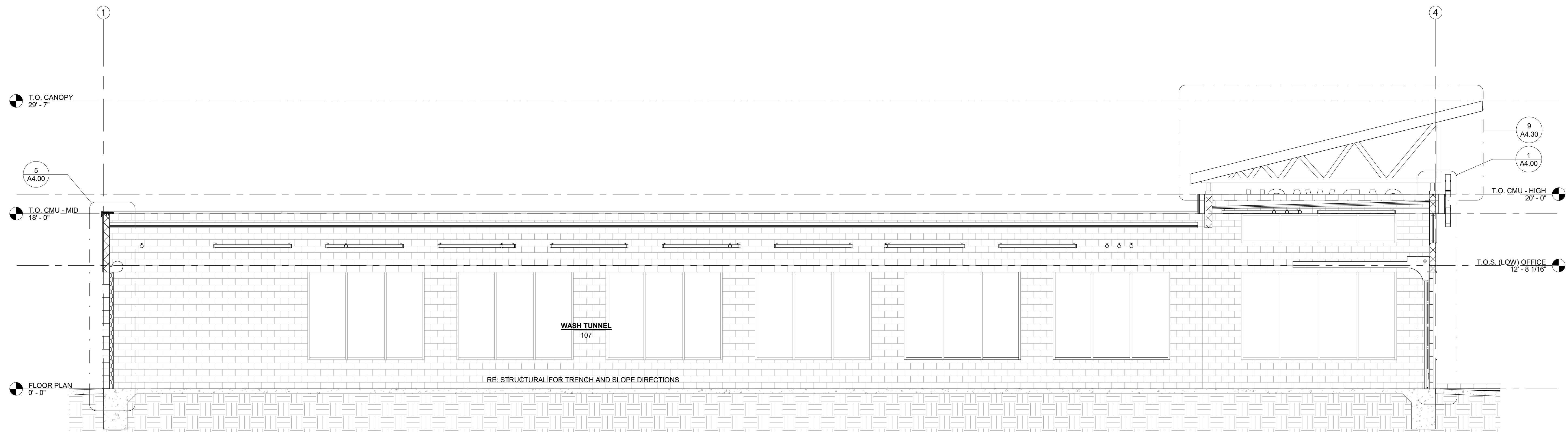


EAST ELEVATION 3
1/4" = 1'-0"

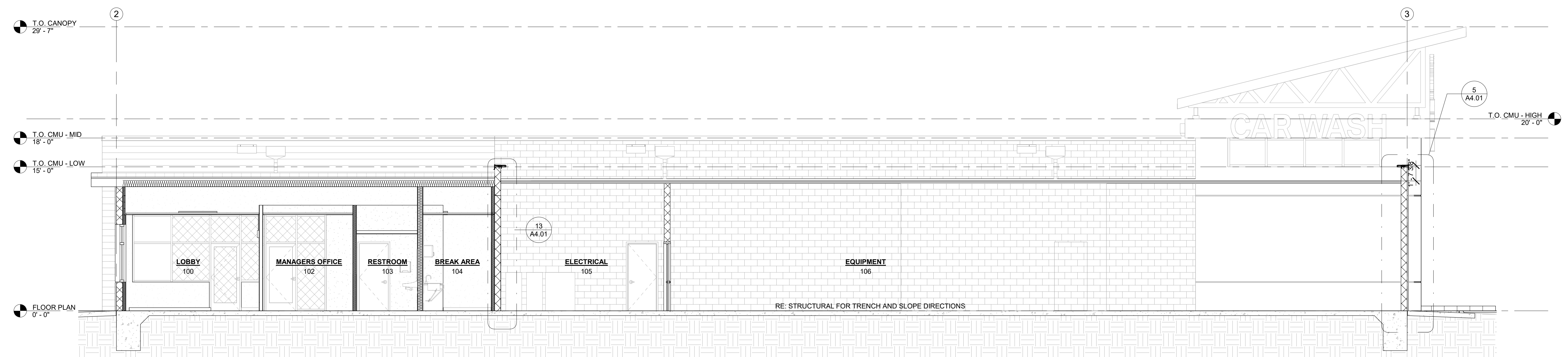


WEST ELEVATION 1
1/4" = 1'-0"

EXTERIOR FINISH SCHEDULE					
SYMBOL	DESCRIPTION	MANUFACTURER	DESCRIPTION	COLOR	REMARKS
CMU-1	CMU	CAPITOL BLOCK	INTEGRAL COLOR SPLIT FACE CMU	ARCTIC WHITE	MORTAR: SPECMIX 750 SILVERSTONE
CMU-2	CMU	CAPITOL BLOCK	INTEGRAL COLOR SPLIT FACE CMU	PAINT PASSIVE GRAY SW	MORTAR: SPECMIX 750 SILVERSTONE
CS-1	CAST STONE	-	TO MATCH CMU-1	-	-
EP-1	PAINT (EXTERIOR)	BENJAMIN MOORE	-	HEARTHSTONE 1601	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-2	PAINT (EXTERIOR)	BENJAMIN MOORE	-	CHARCOAL SLATE HC-178	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-3	PAINT (EXTERIOR)	-	CUSTOM GREEN SW COLOR (SPECS PROVIDED BY OWNER)	-	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-4	PAINT (EXTERIOR)	-	CUSTOM YELLOW SW COLOR (SPECS PROVIDED BY OWNER)	-	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-5	PAINT (EXTERIOR)	SHERWIN WILLIAMS	-	SW 7005 PURE WHITE	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
MTL-1	METAL	-	GALVANIZED BREAK METAL	PAINT RE: ELEVATION	-
MTL-2	METAL	-	PAC CLASD HWP PANEL	GRAHITE, 24 GA	-
MTL-4	METAL	-	PREFINISHED METAL COPING	PAINT EP-4	-
MTL-5	METAL	-	PREFINISHED METAL GUTTER AND DOWNSPOUTS	COLOR TO MATCH WETHERED ZINC, 24 GA	MATCH EP-2
MTL-6	METAL	MBCI	GALVALUME, SIGNATURE 200	COLOR TO MATCH WETHERED ZINC, 24 GA	-
STC-1	SUCCO	-	STUCCO	MATCH EP-5	-

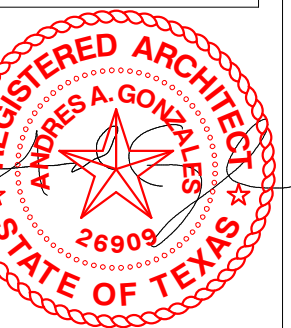


LONGITUDINAL SECTION AT TUNNEL 3
3/16" = 1'-0"



LONGITUDINAL SECTION AT OFFICE 1
3/16" = 1'-0"

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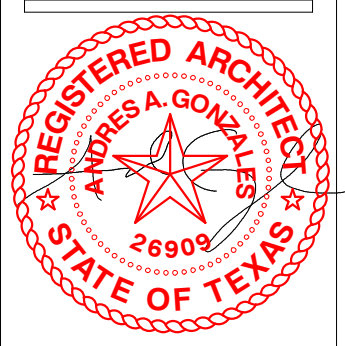
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PROJECT:
M22-02-B0035

SHEET:
A3.20
BUILDING SECTIONS

IN: 35 & CHISOS
SAN MARCOS, TEXAS 78666

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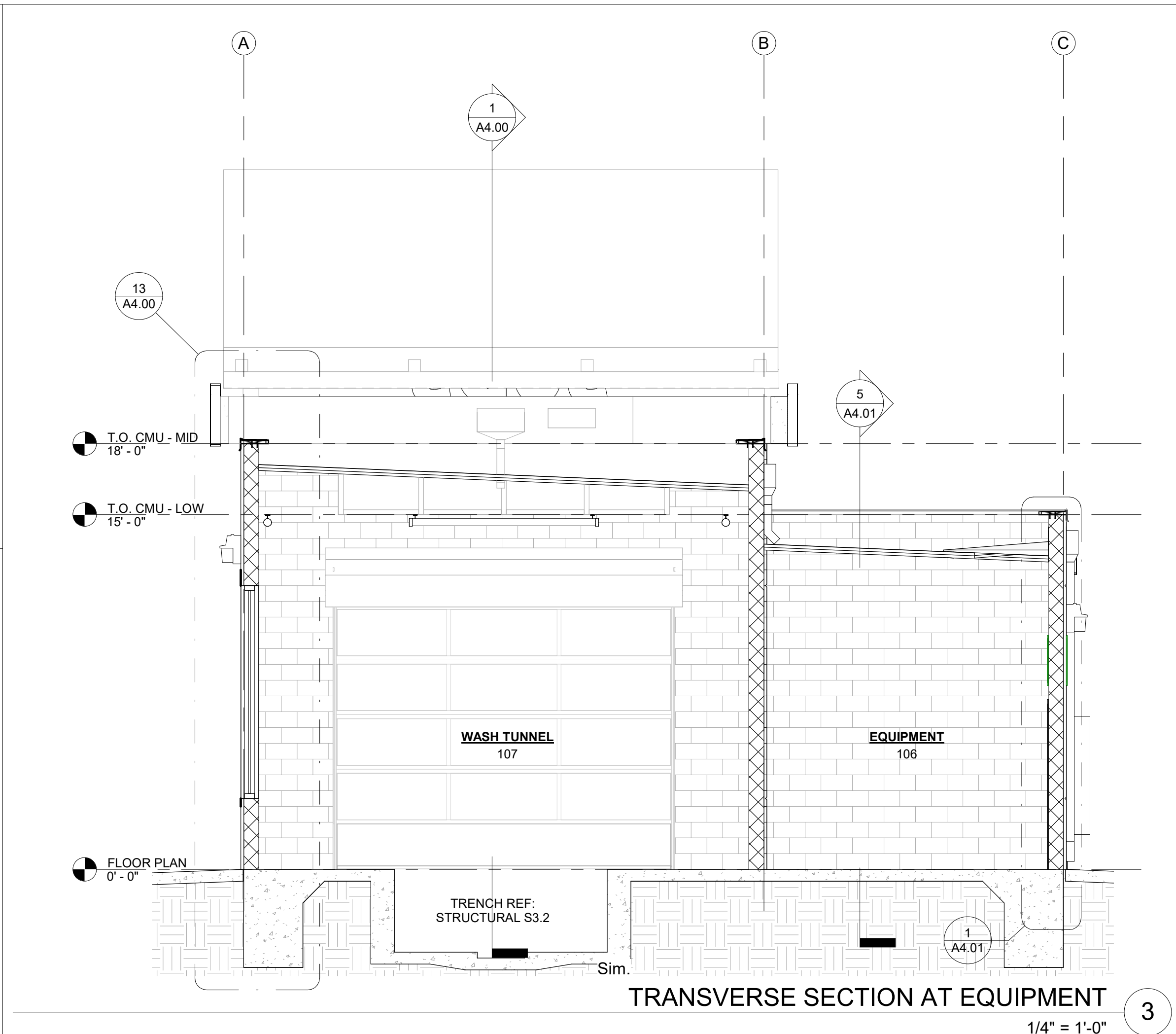


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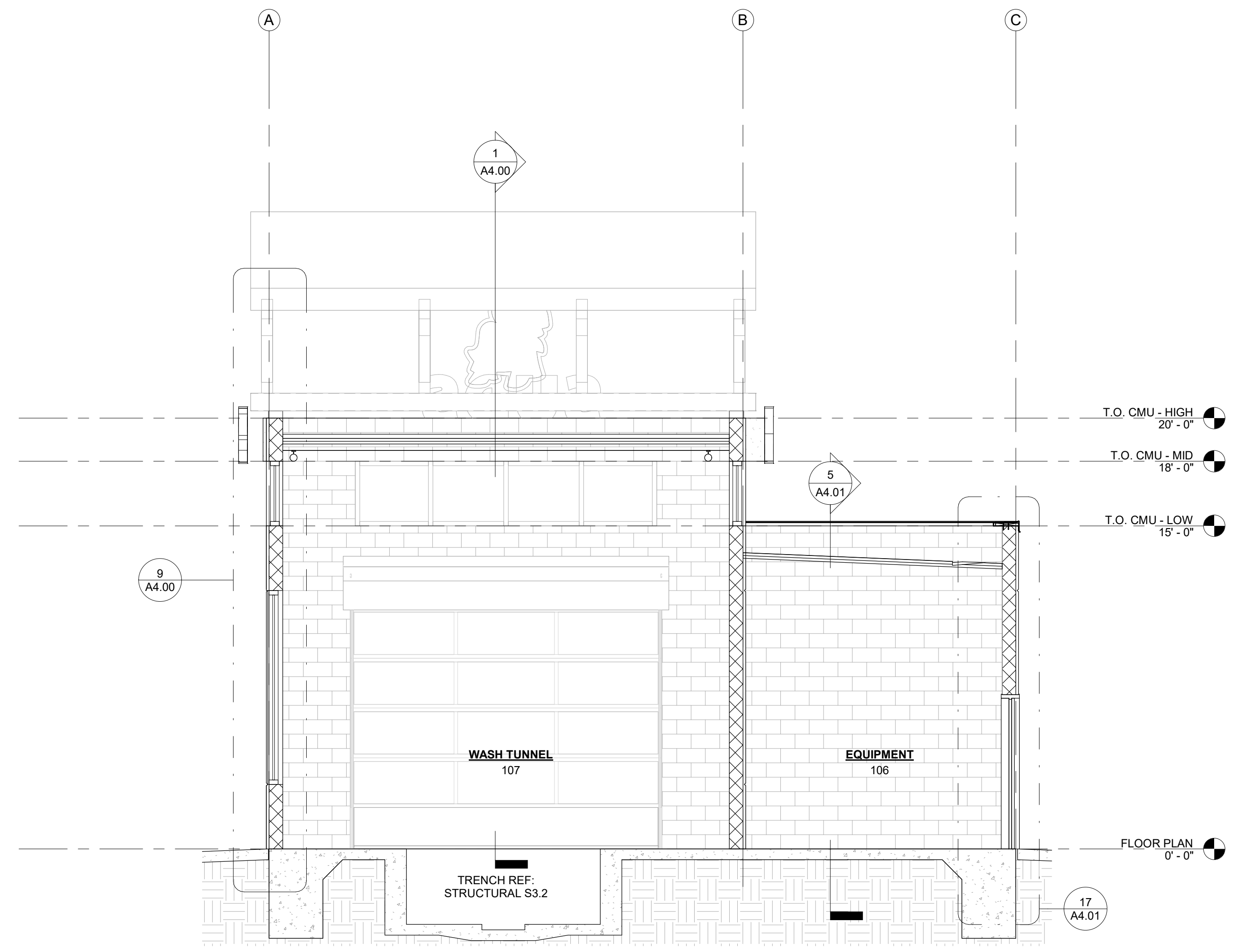
SUDS DELUXE CAR WASH
SAN MARCOS

PM: AG DE: DS
PROJECT:
M22-02-B0035
SHEET:
A3.21
BUILDING SECTIONS

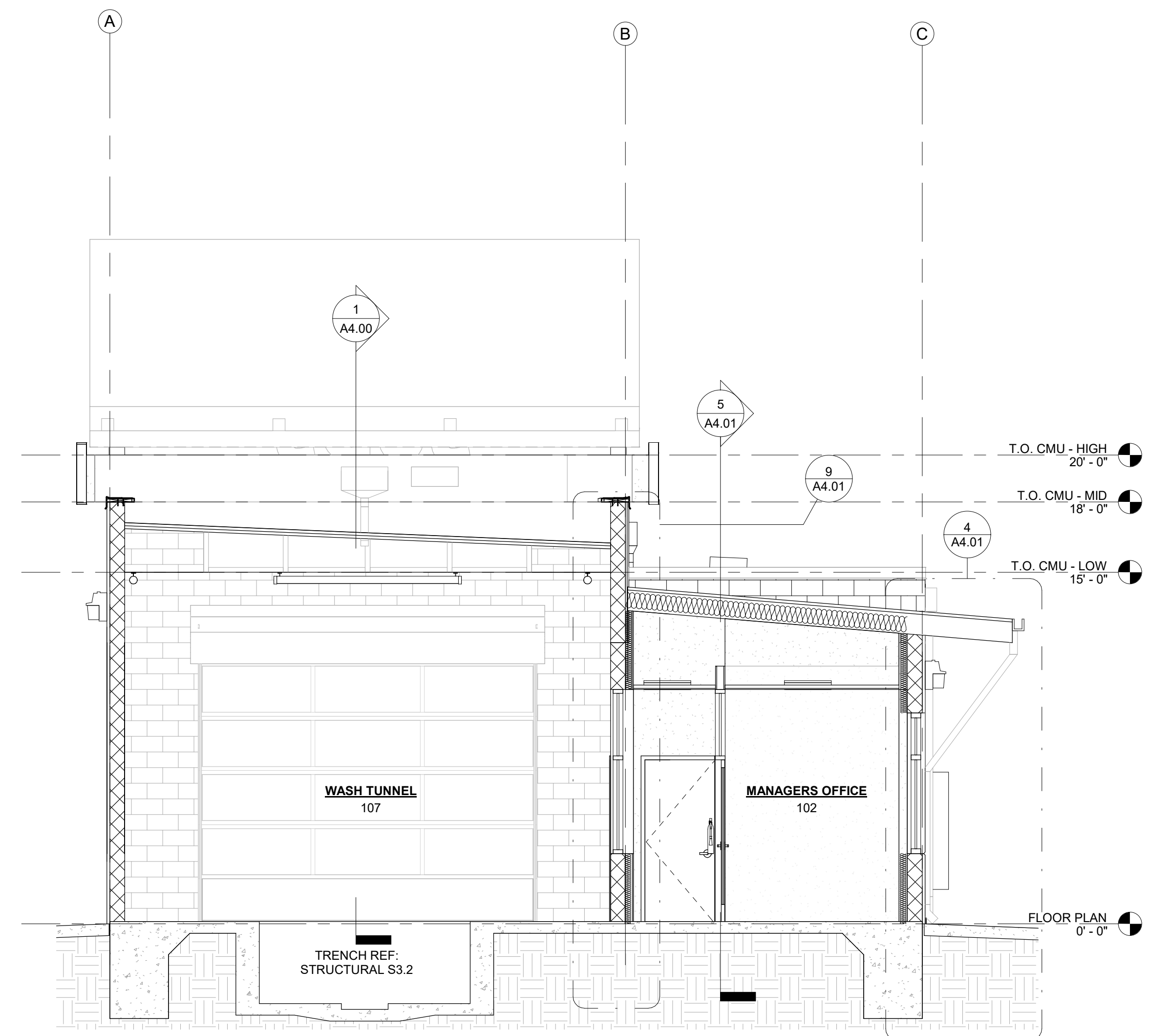
IH: 35 & CHISOS
SAN MARCOS, TEXAS 78666



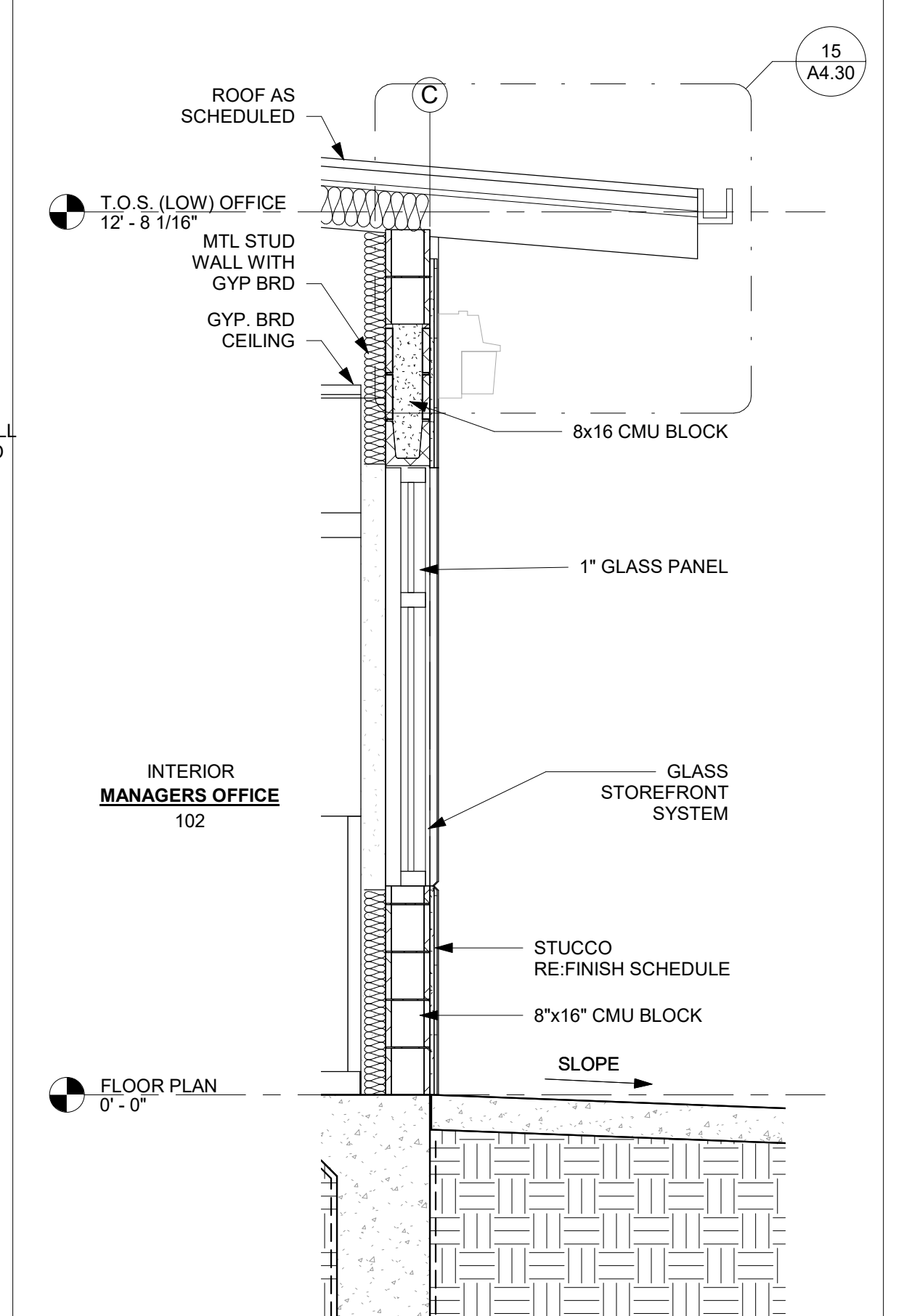
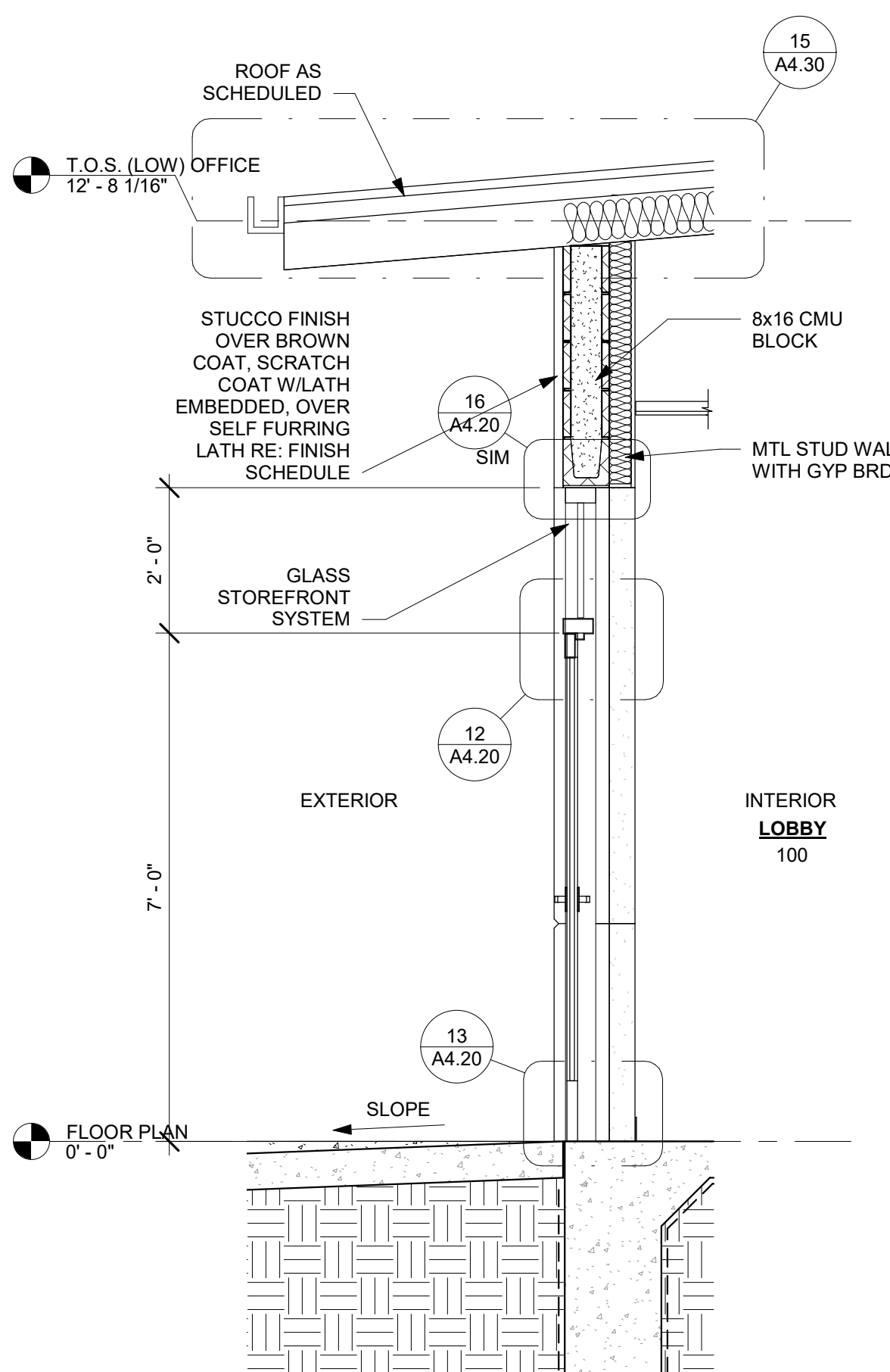
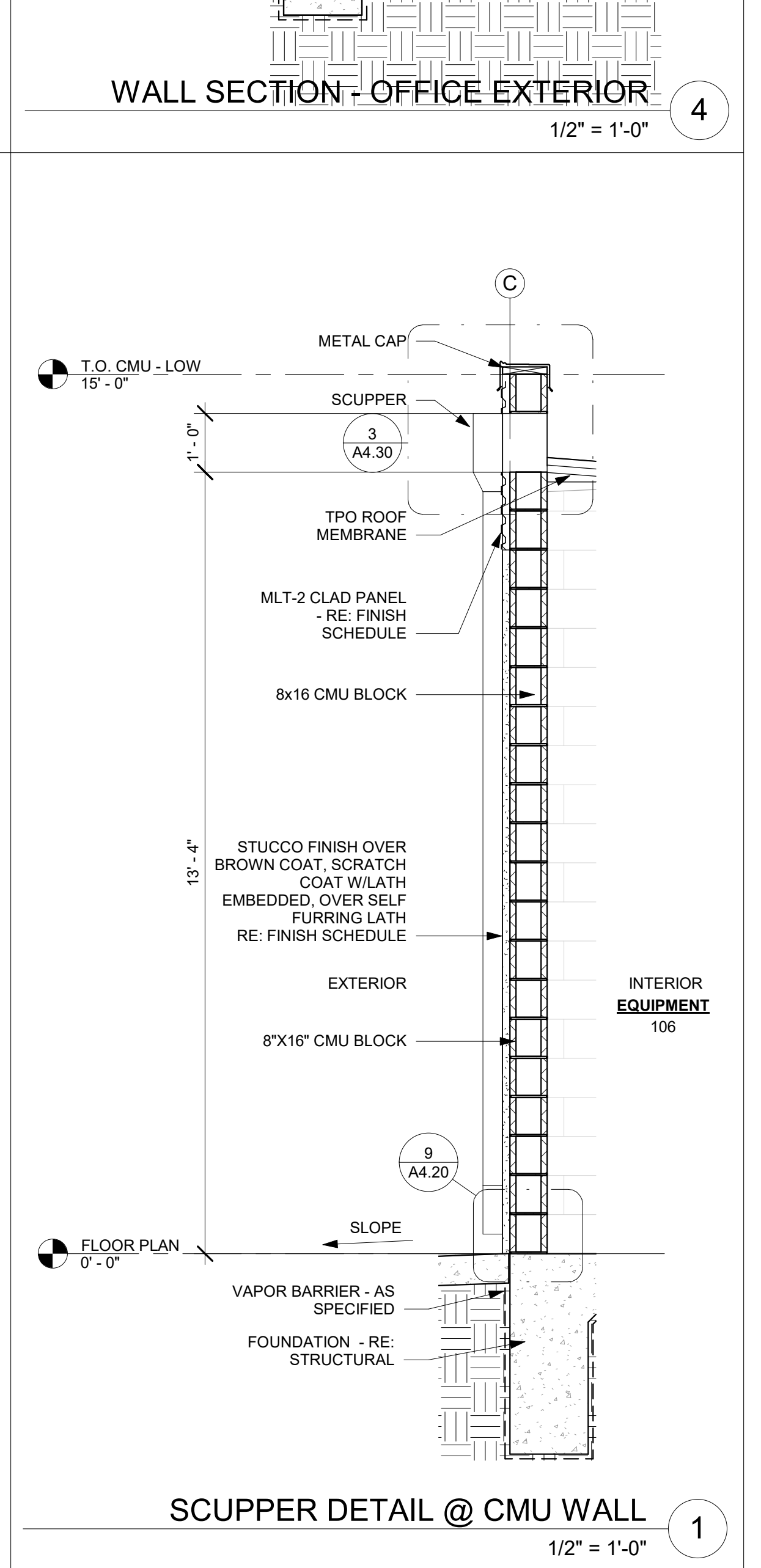
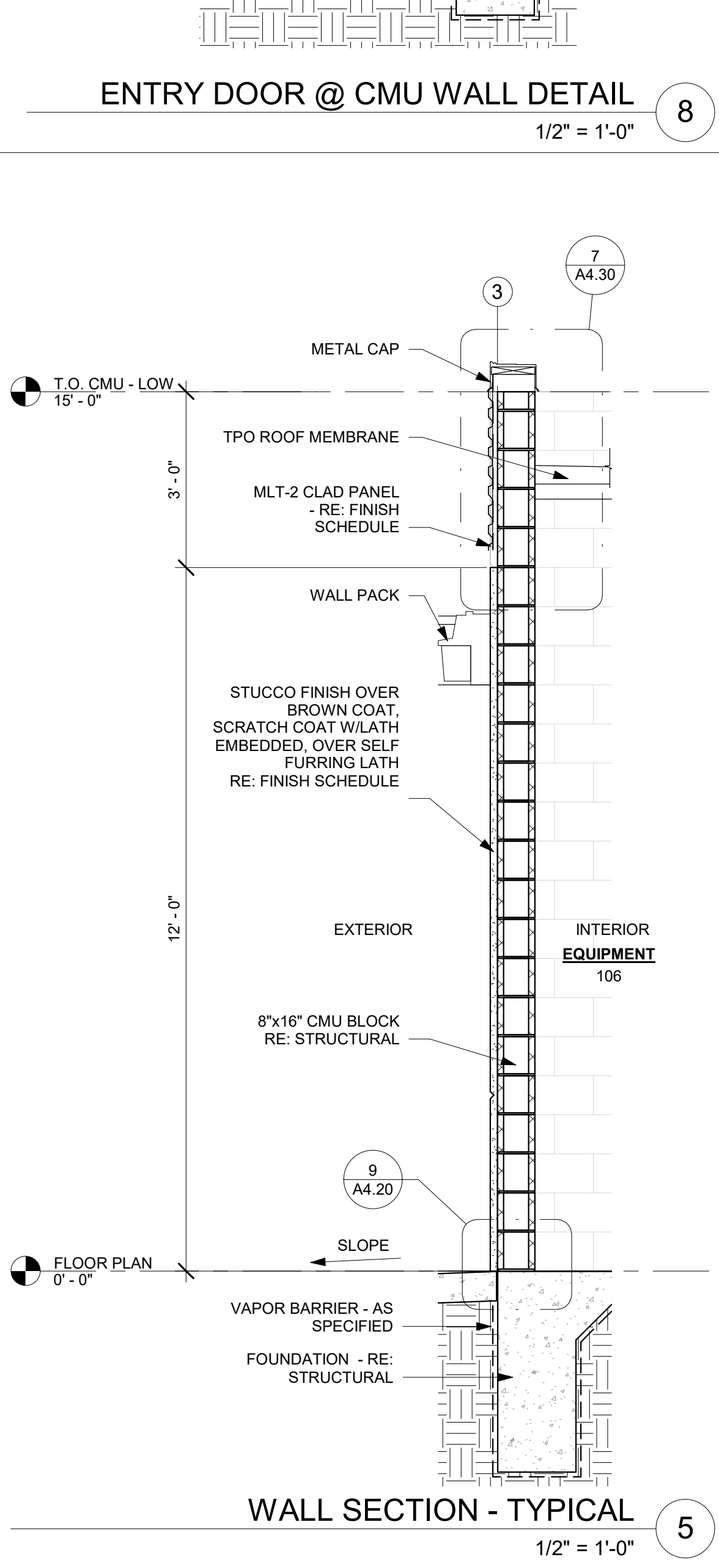
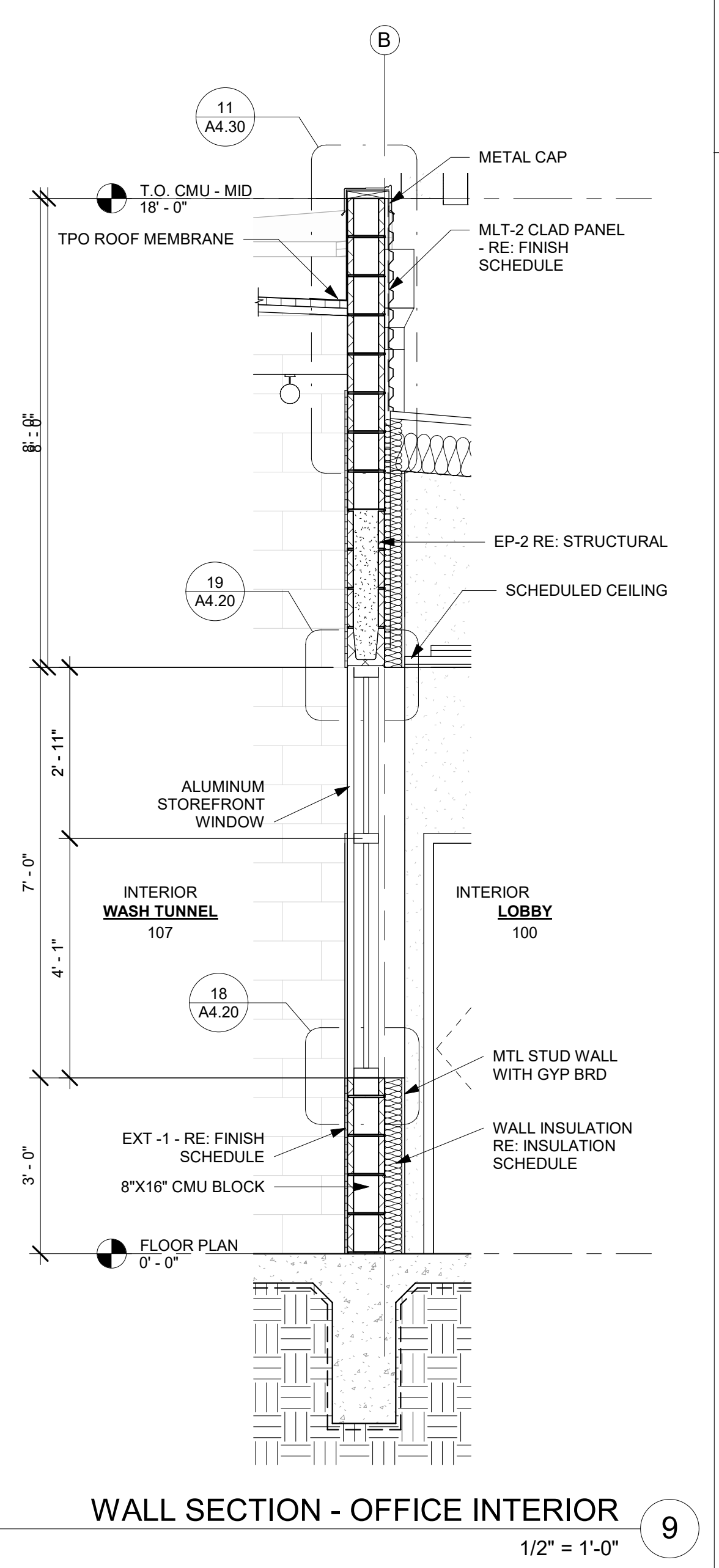
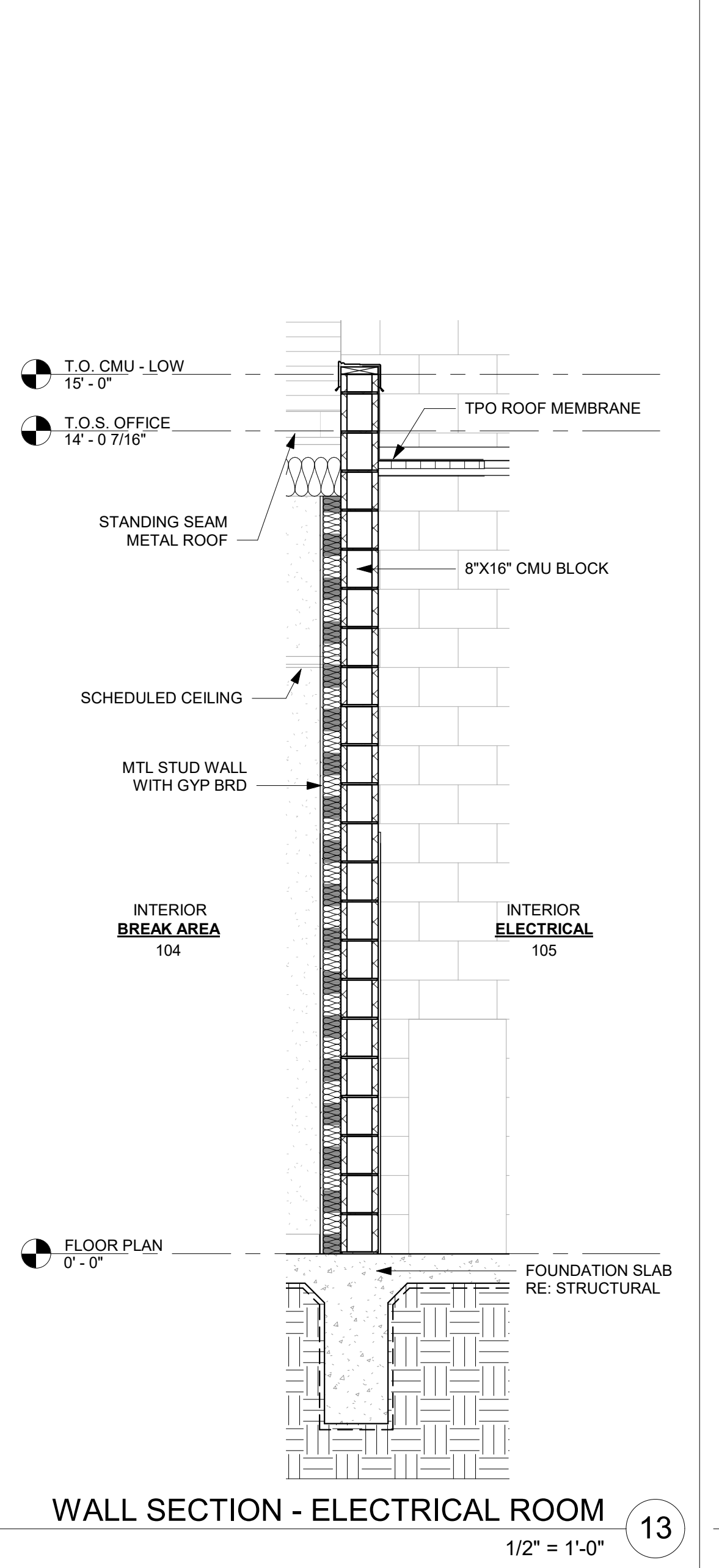
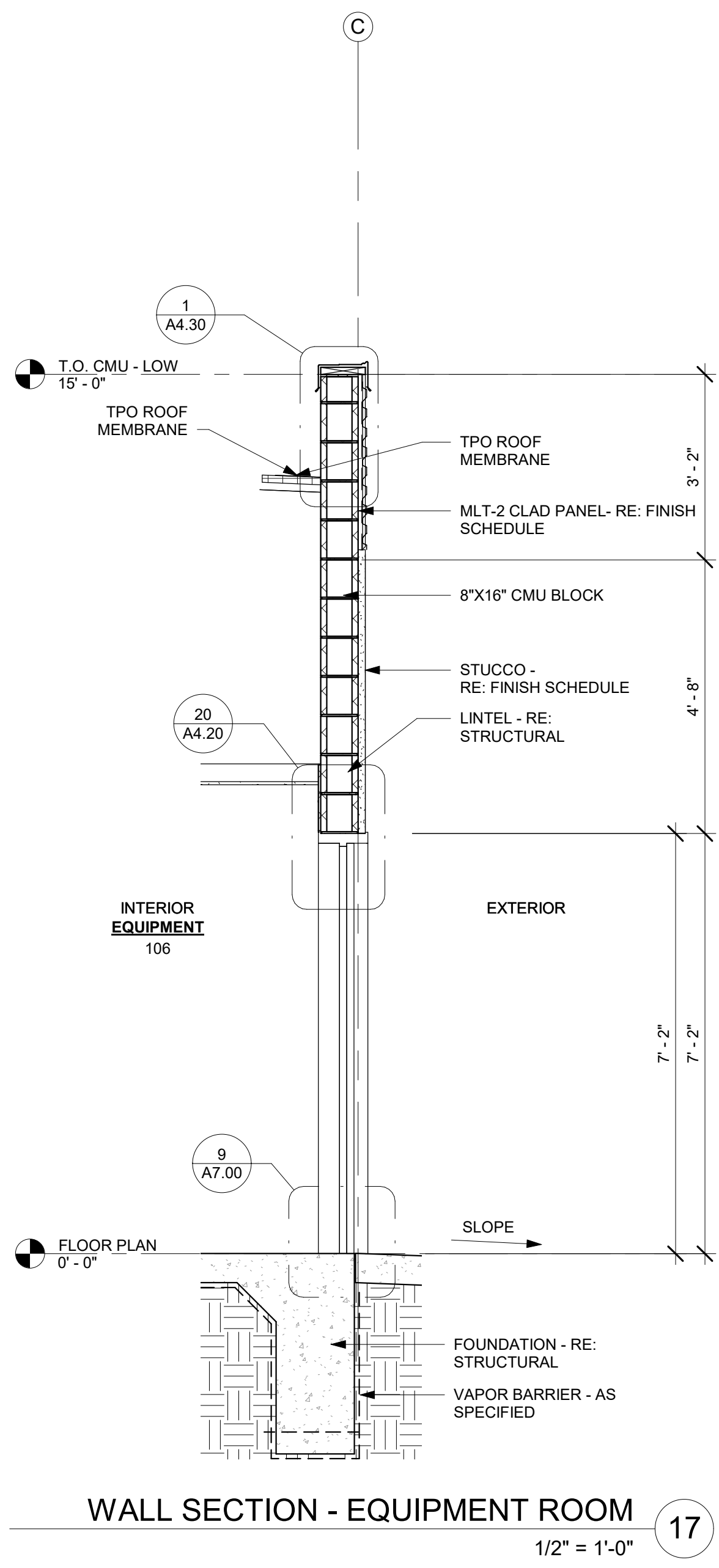
TRANSVERSE SECTION AT EQUIPMENT
1/4" = 1'-0" 3

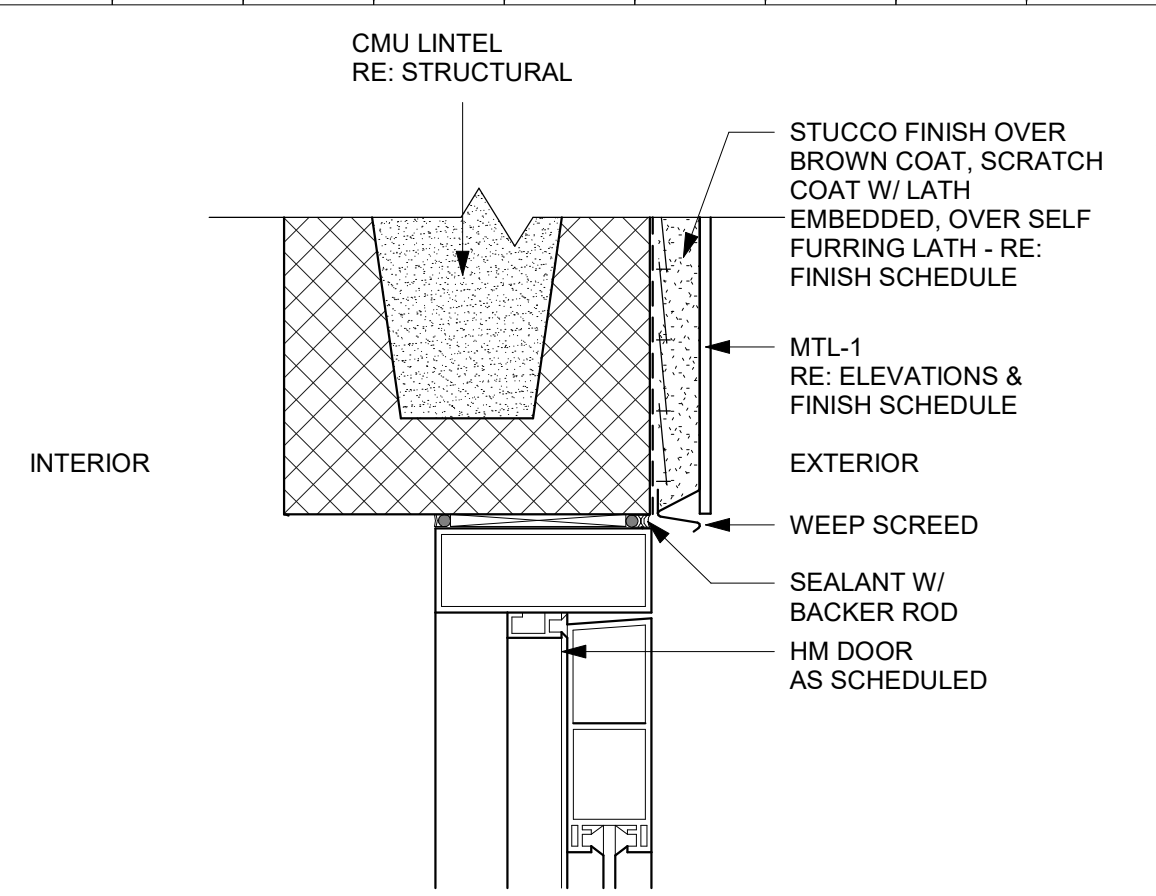


TRANSVERSE SECTION
1/4" = 1'-0" 9

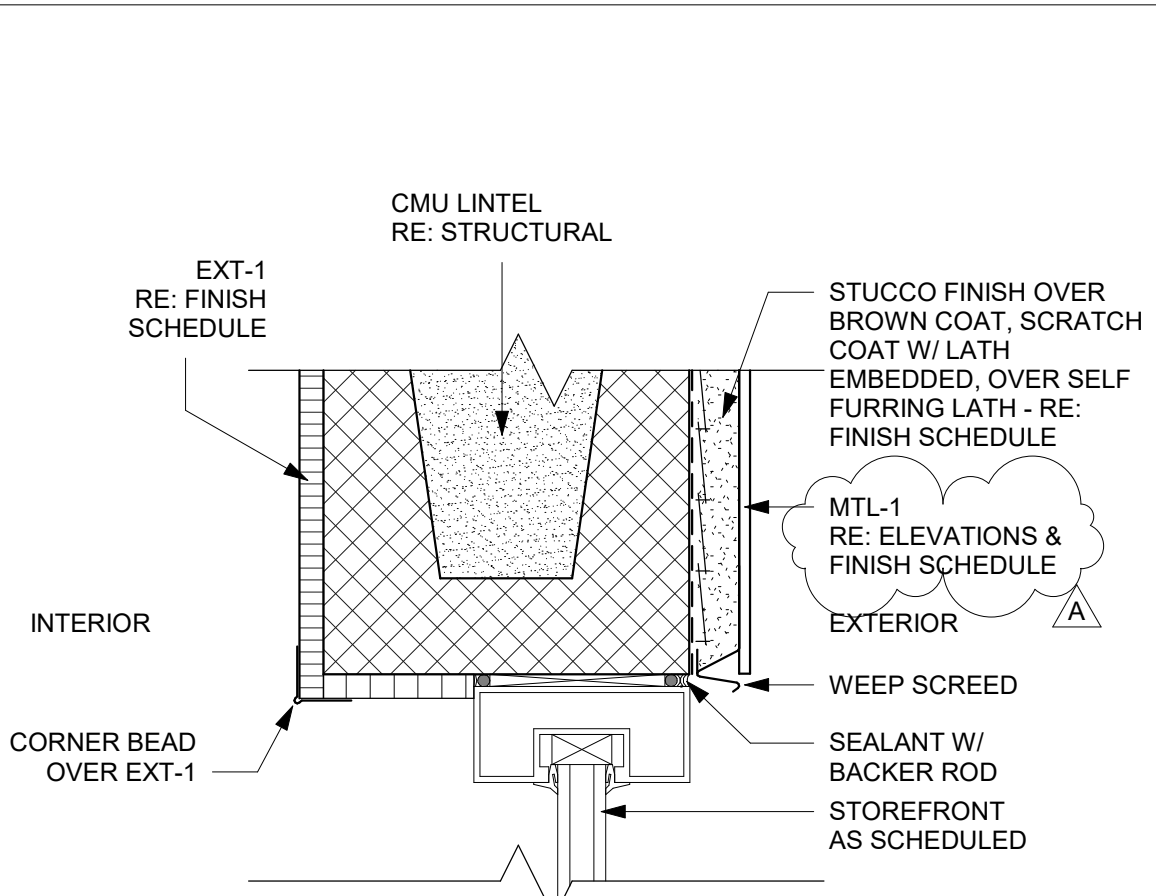


TRANSVERSE SECTION AT OFFICE
1/4" = 1'-0" 1

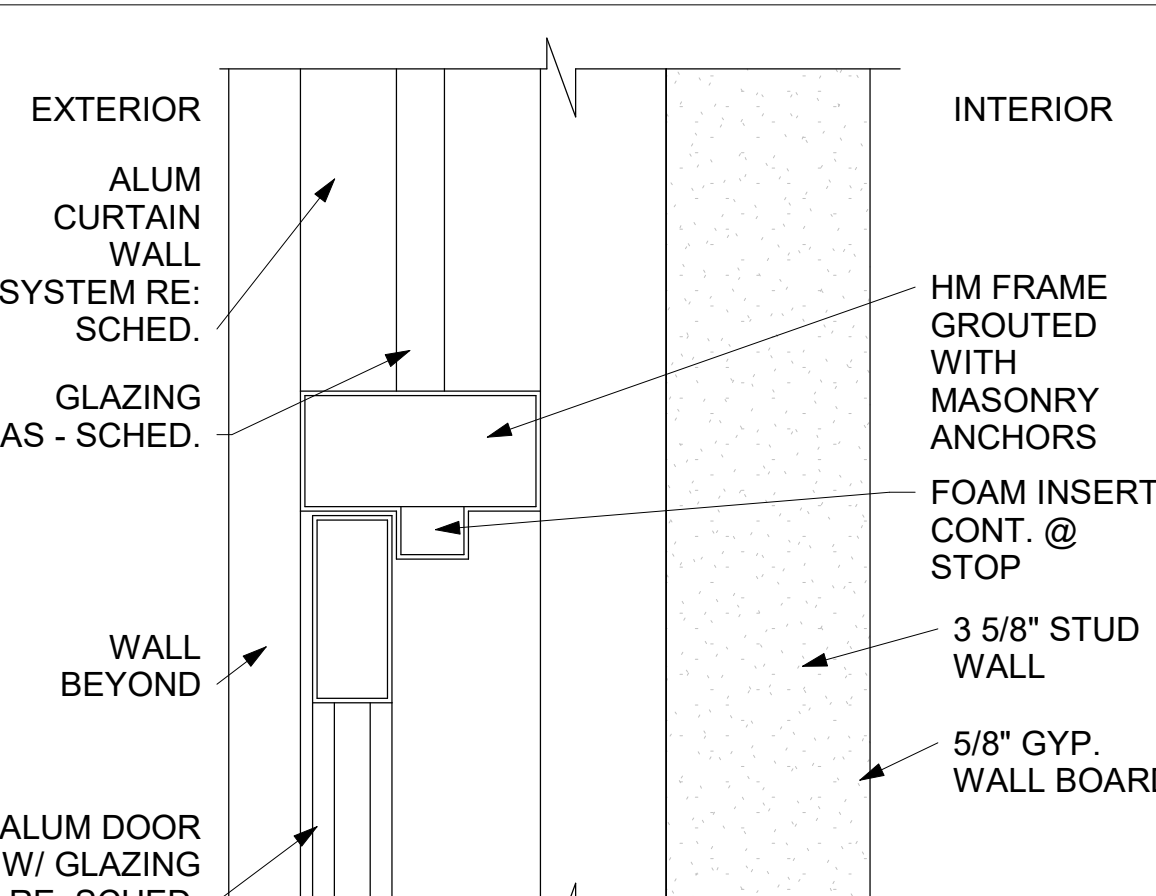




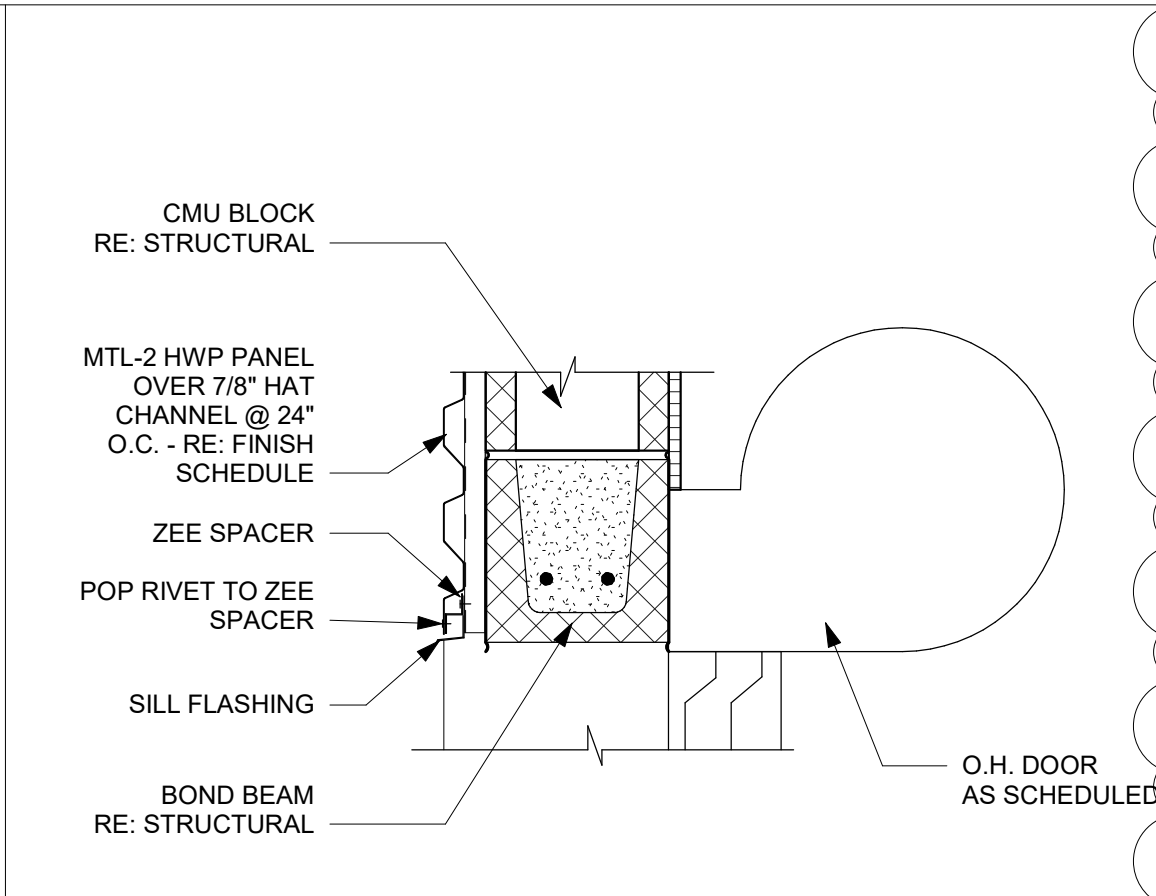
DETAIL - DOOR OH @ TUNNEL EXIT
3" = 1'-0" 20



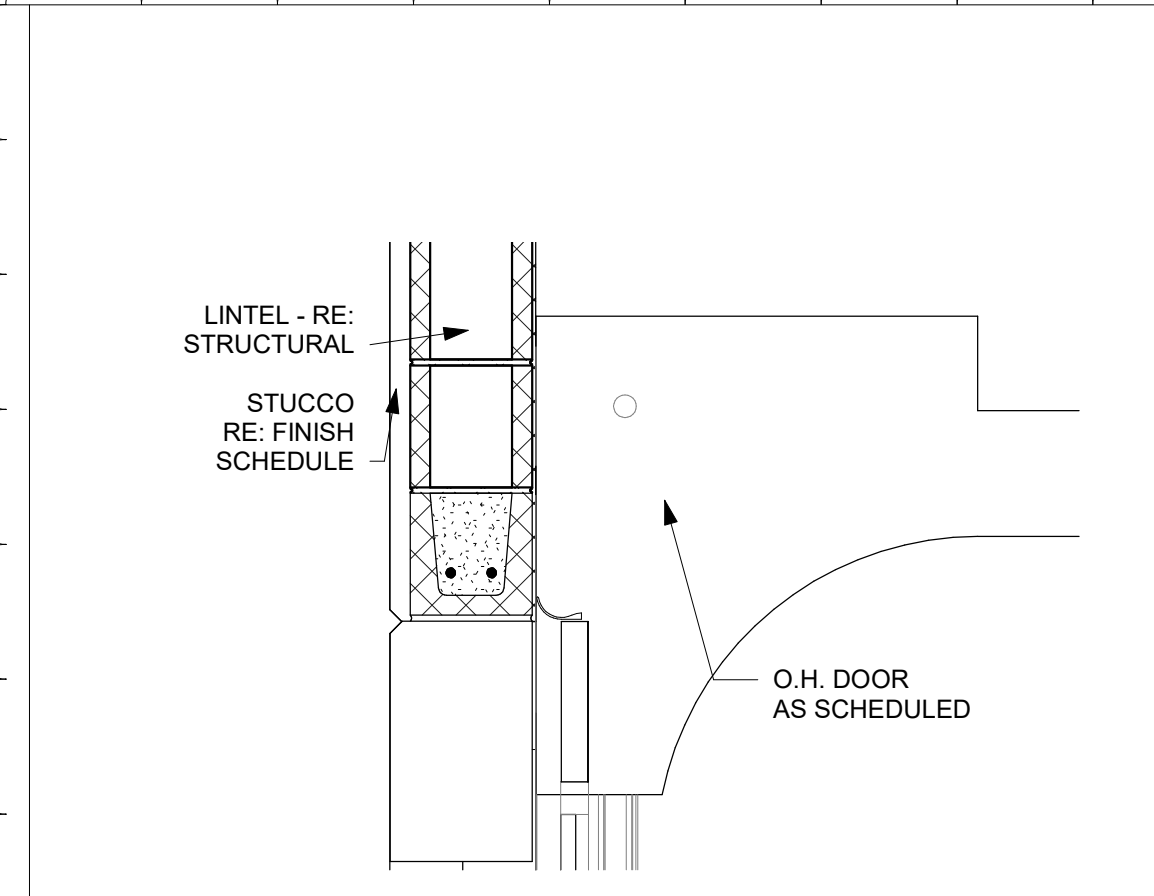
DETAIL - WINDOW HEADER @ STUCCO
3" = 1'-0" 16



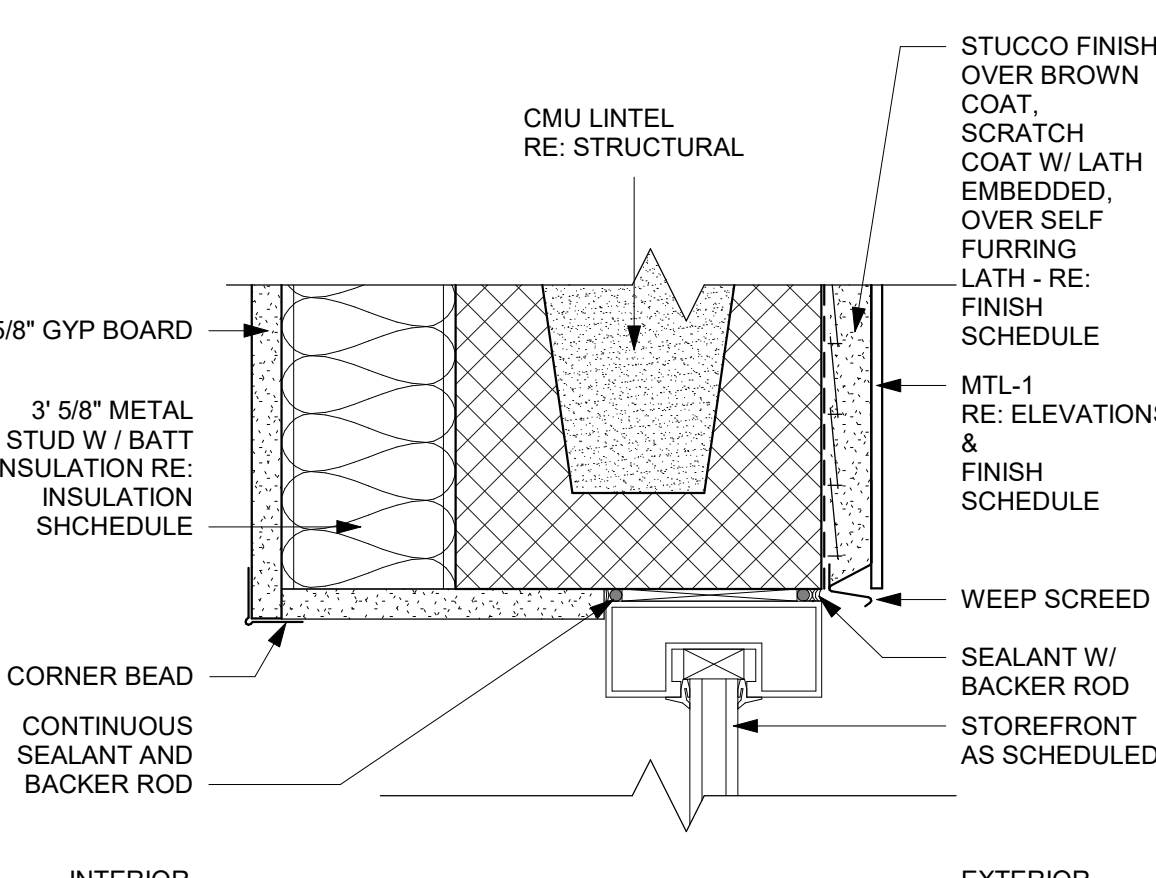
HEAD DETAIL @ ALUM GLASS DOOR
3" = 1'-0" 12



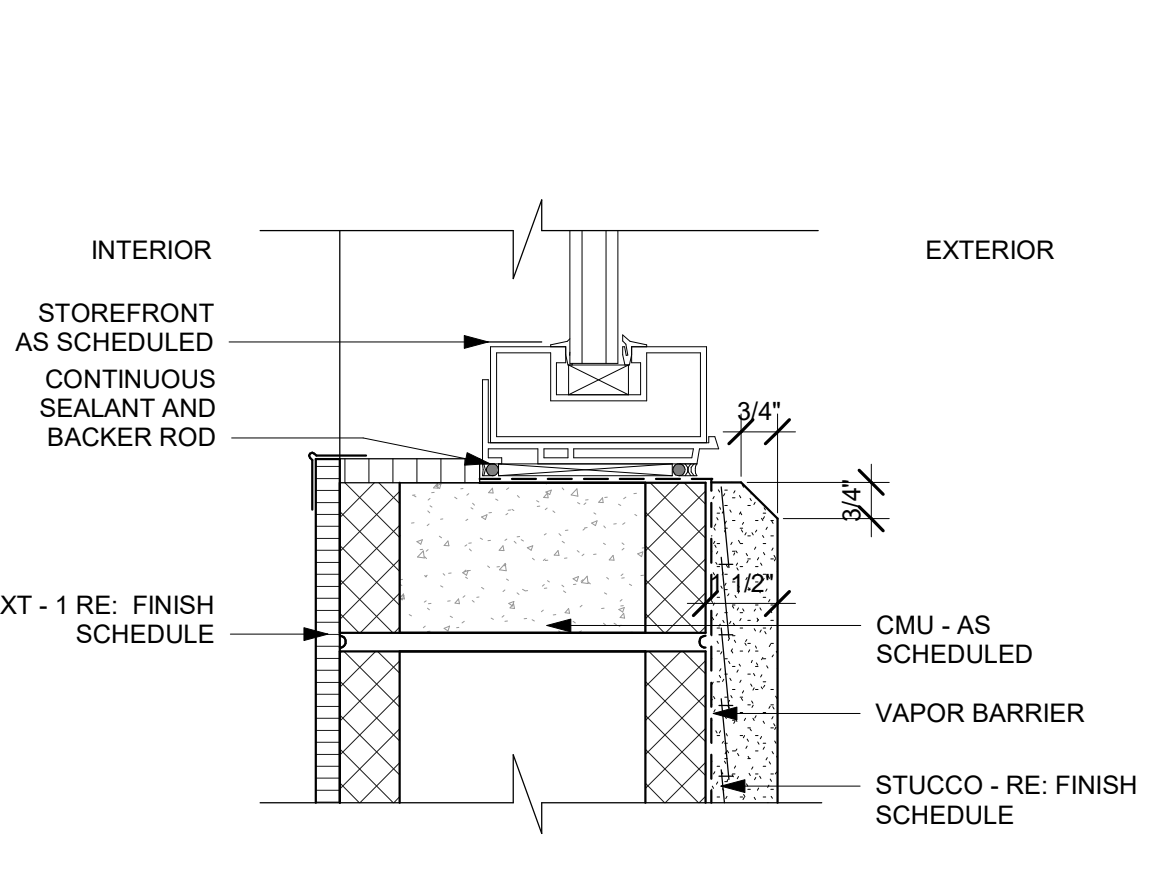
OH DOOR DET. @ TUNNEL ENTRANCE
1 1/2" = 1'-0" 8



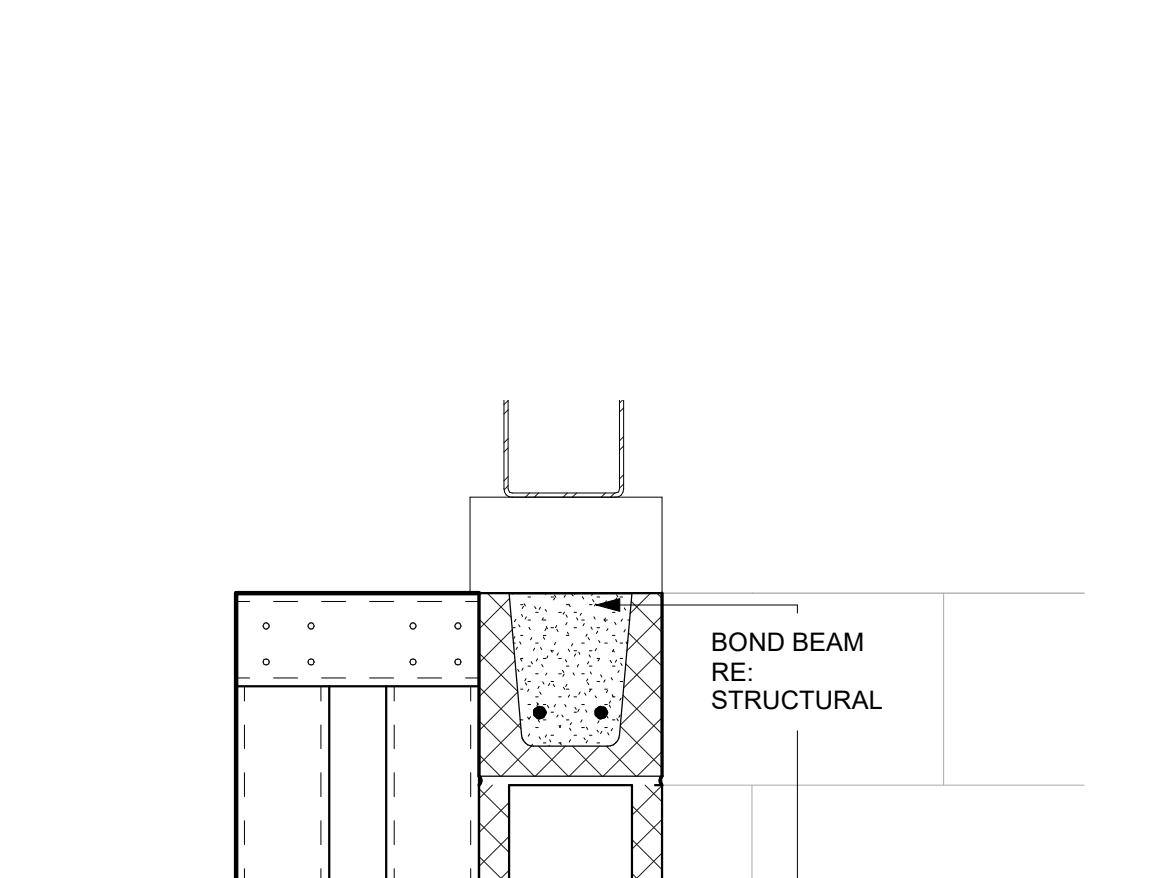
DETAIL - DOOR OH @ TUNNEL EXIT
1" = 1'-0" 4



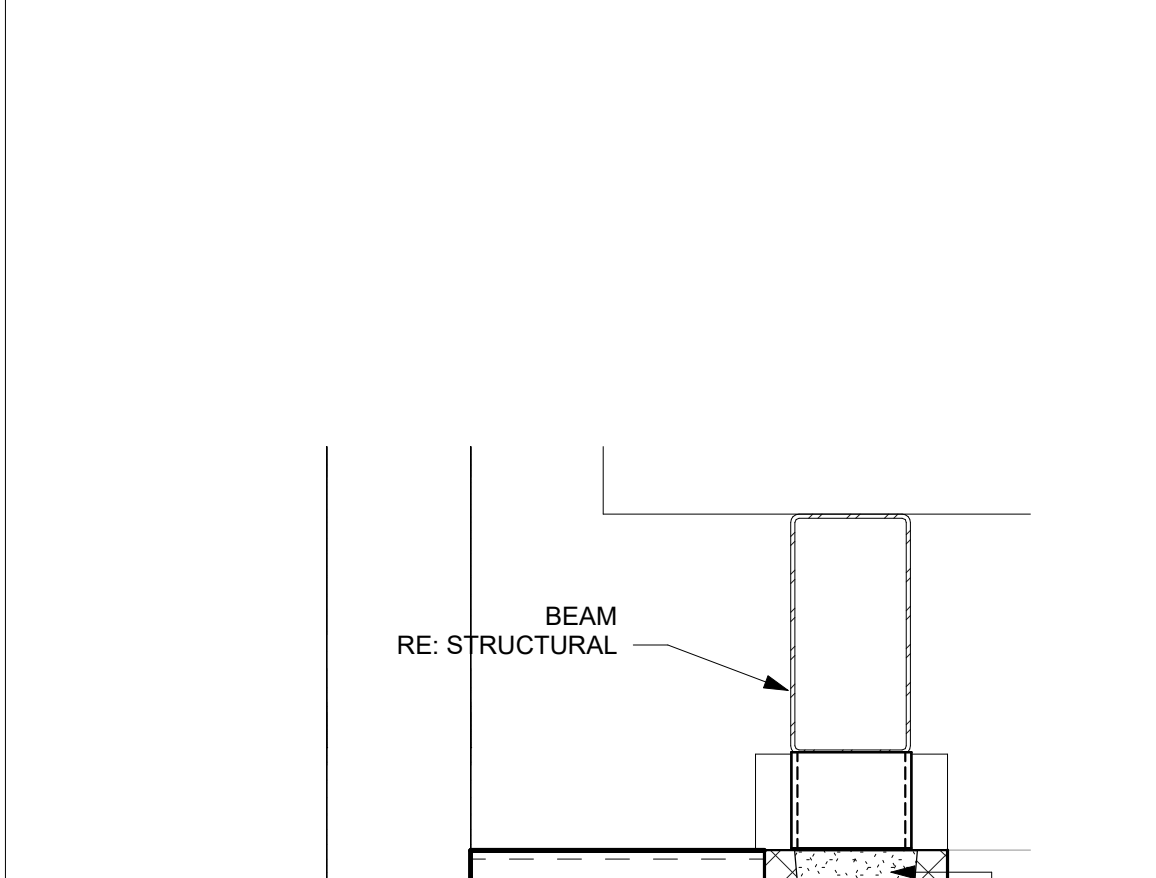
DETAIL - WINDOW HEAD @ CMU
3" = 1'-0" 19



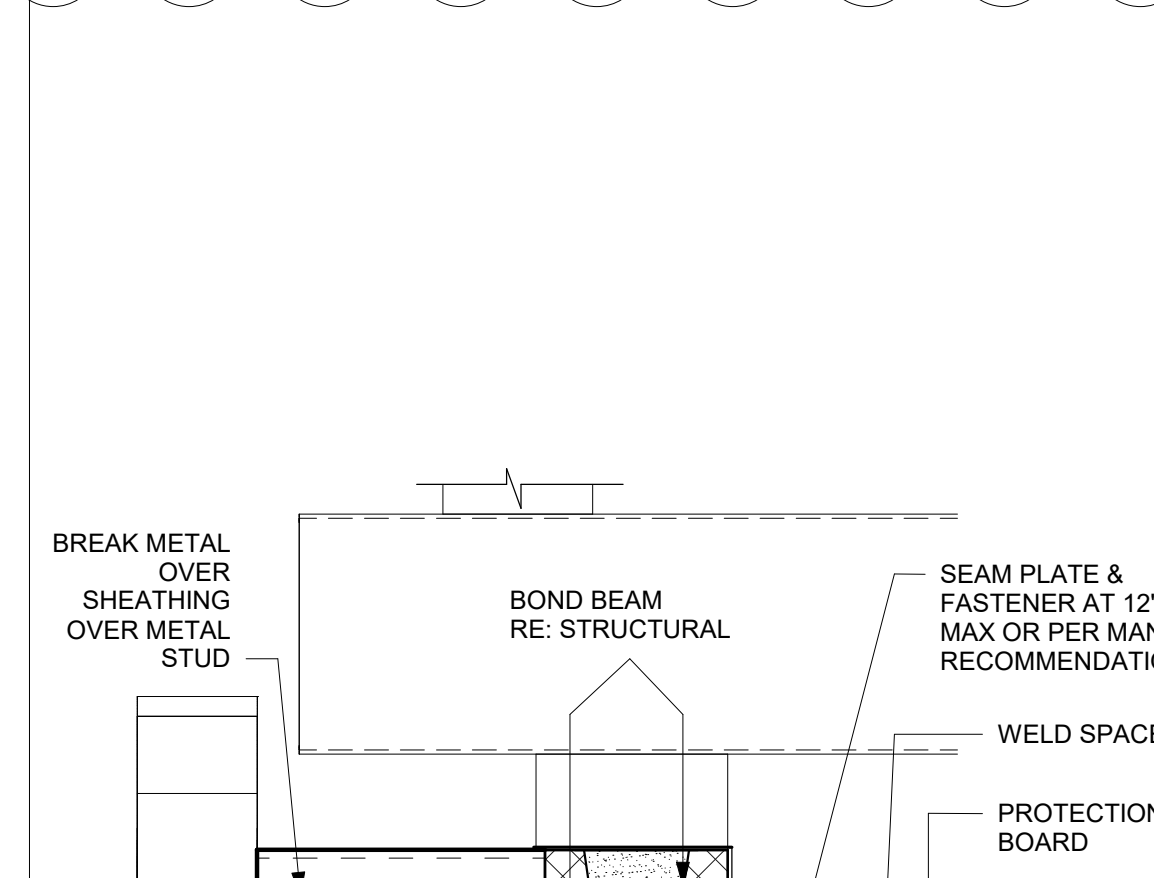
B.O. SILL @ CMU WALL W/ REVEAL
3" = 1'-0" 15



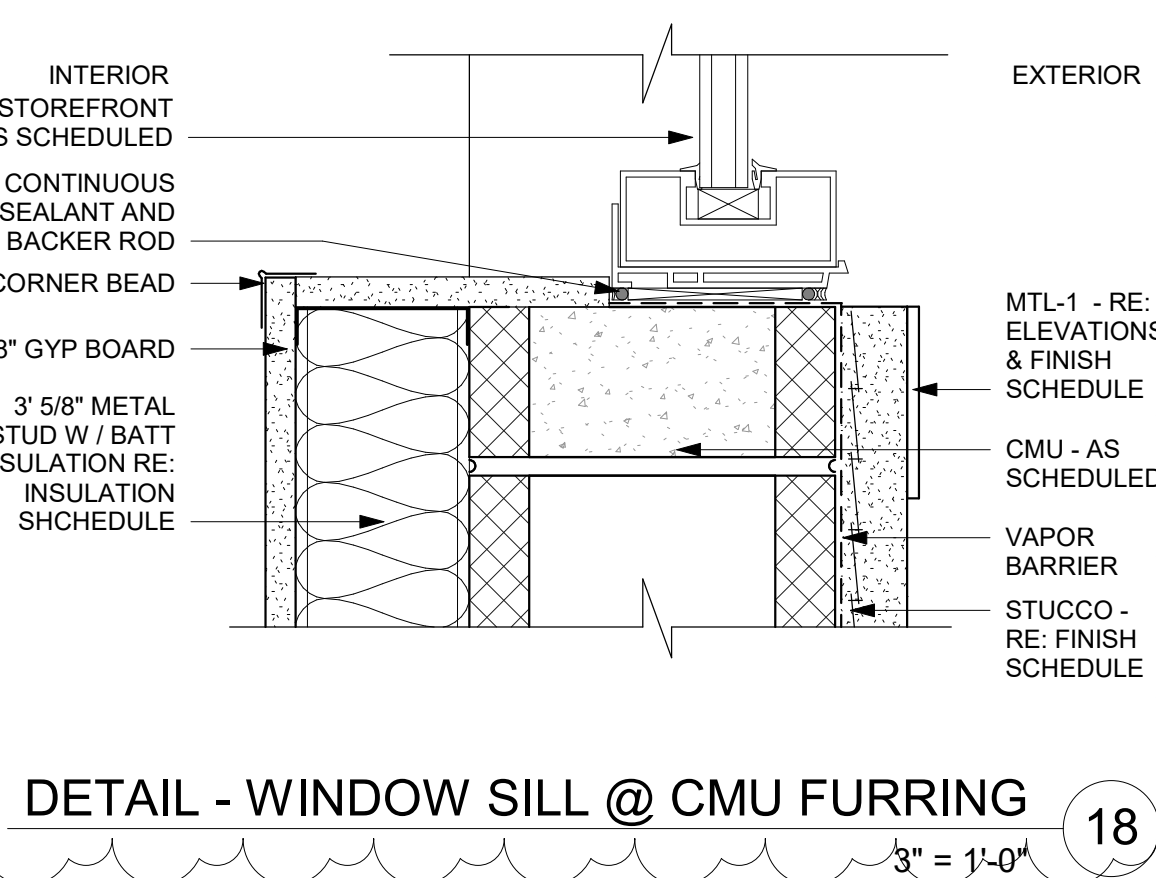
SECTION DETAIL - ROOF TRANSITION
1 1/2" = 1'-0" 10



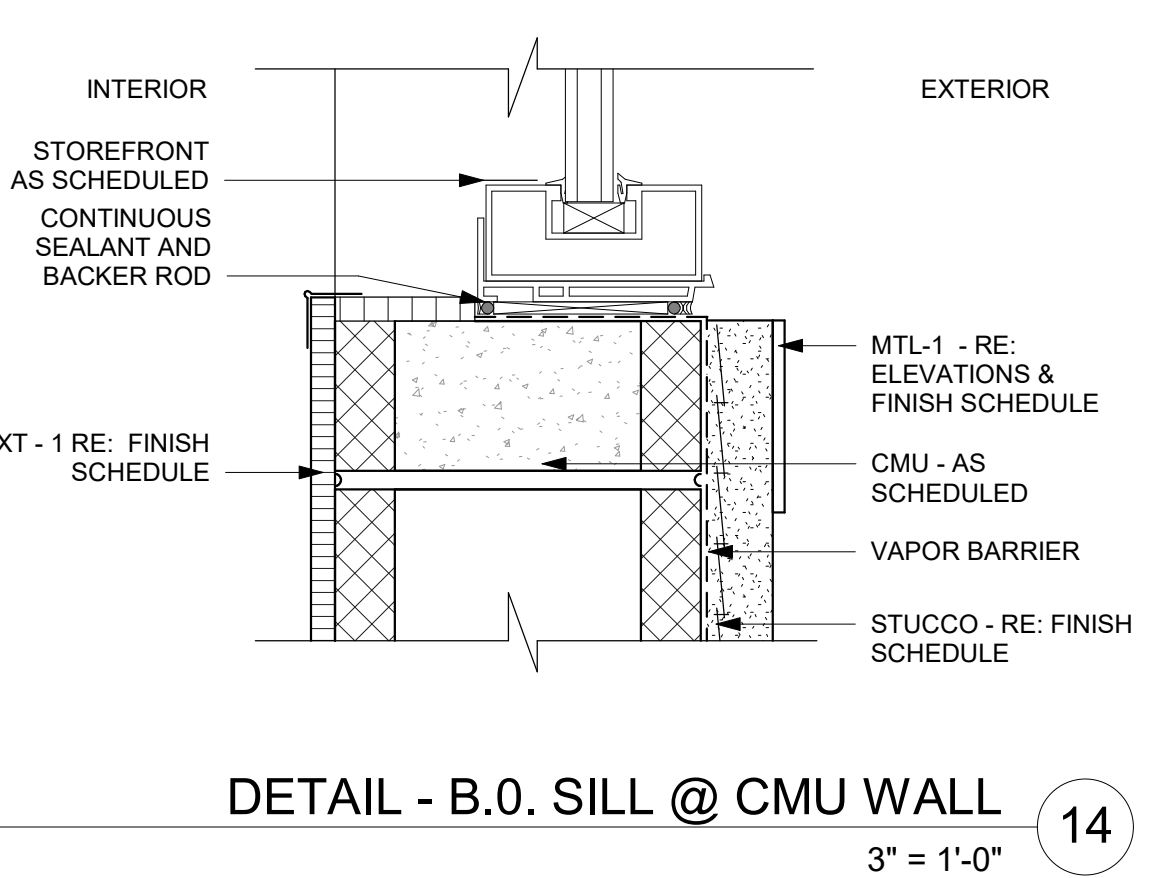
FRAMING DET. @ CLERESTORY WINDOW
1 1/2" = 1'-0" 6



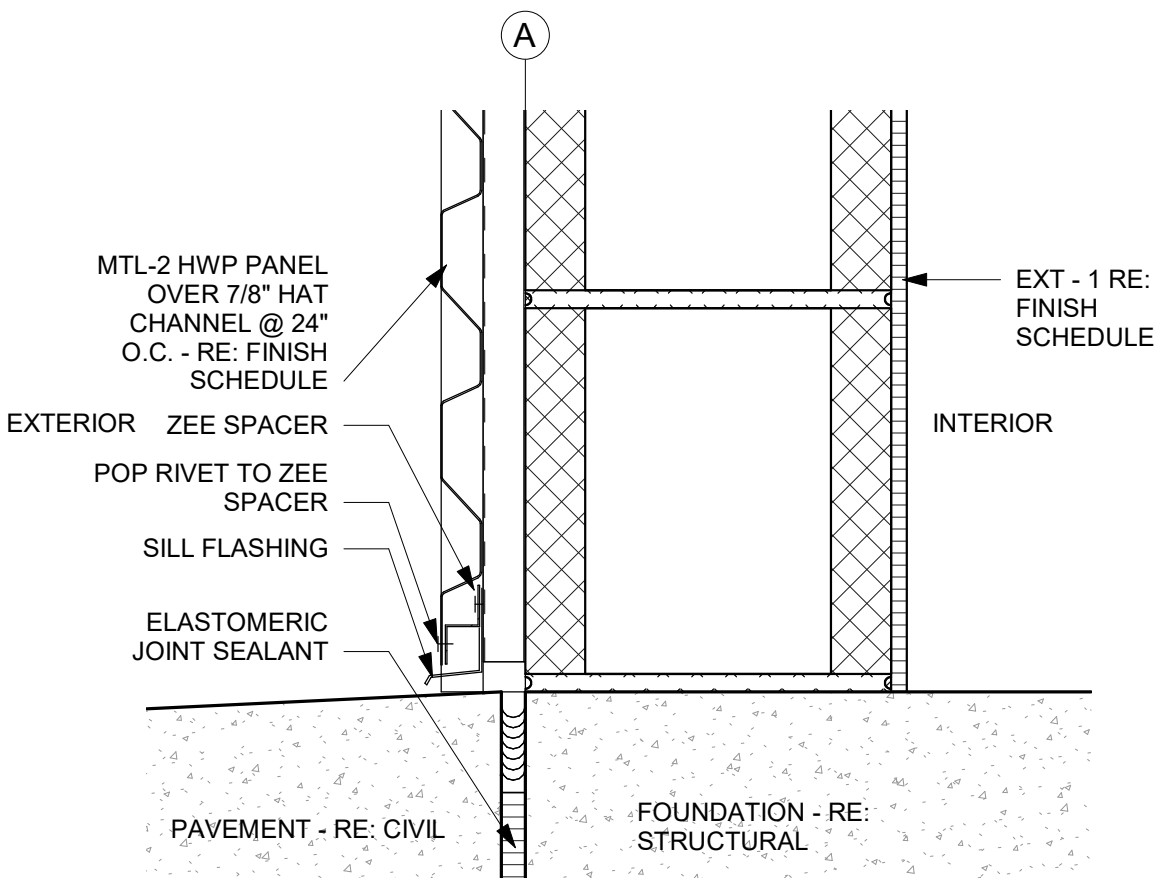
FRAMING DET. @ TUNNEL CANOPY
1 1/2" = 1'-0" 2



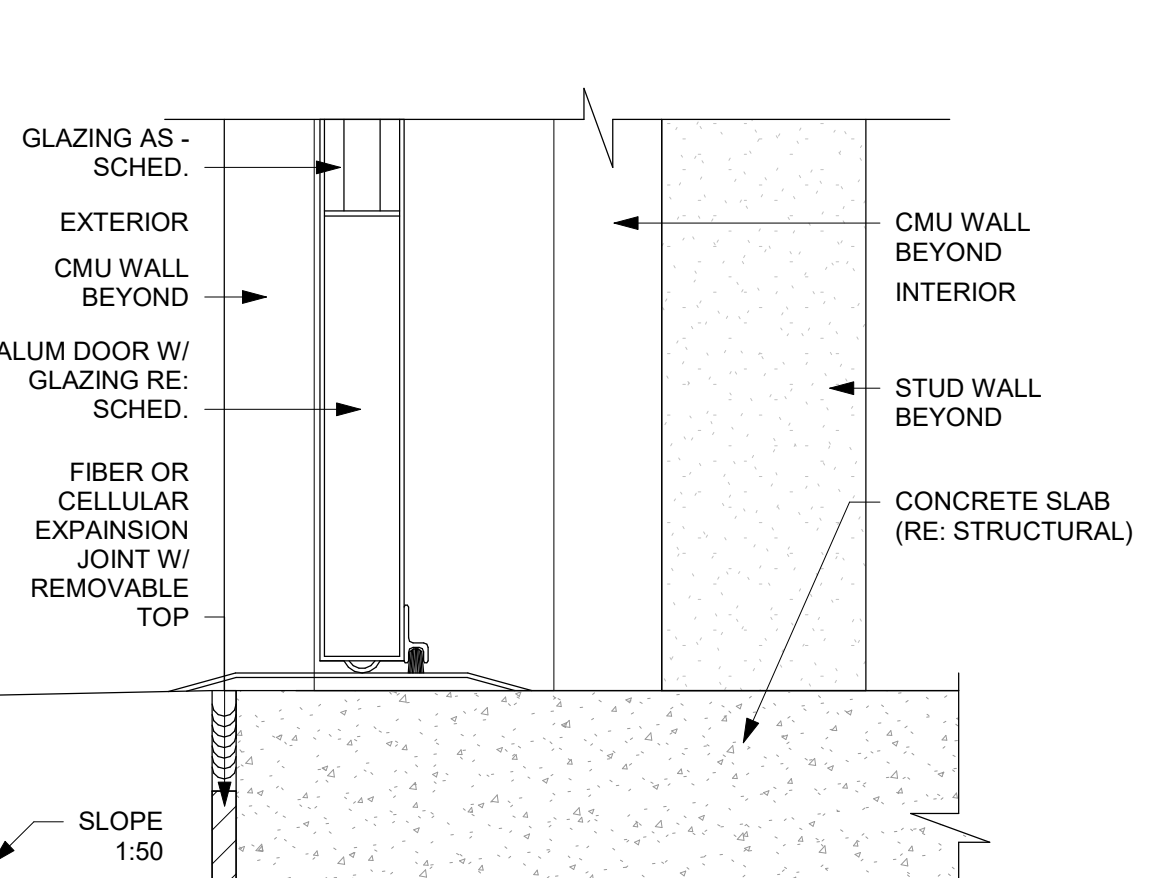
DETAIL - WINDOW SILL @ CMU FURRING
3" = 1'-0" 18



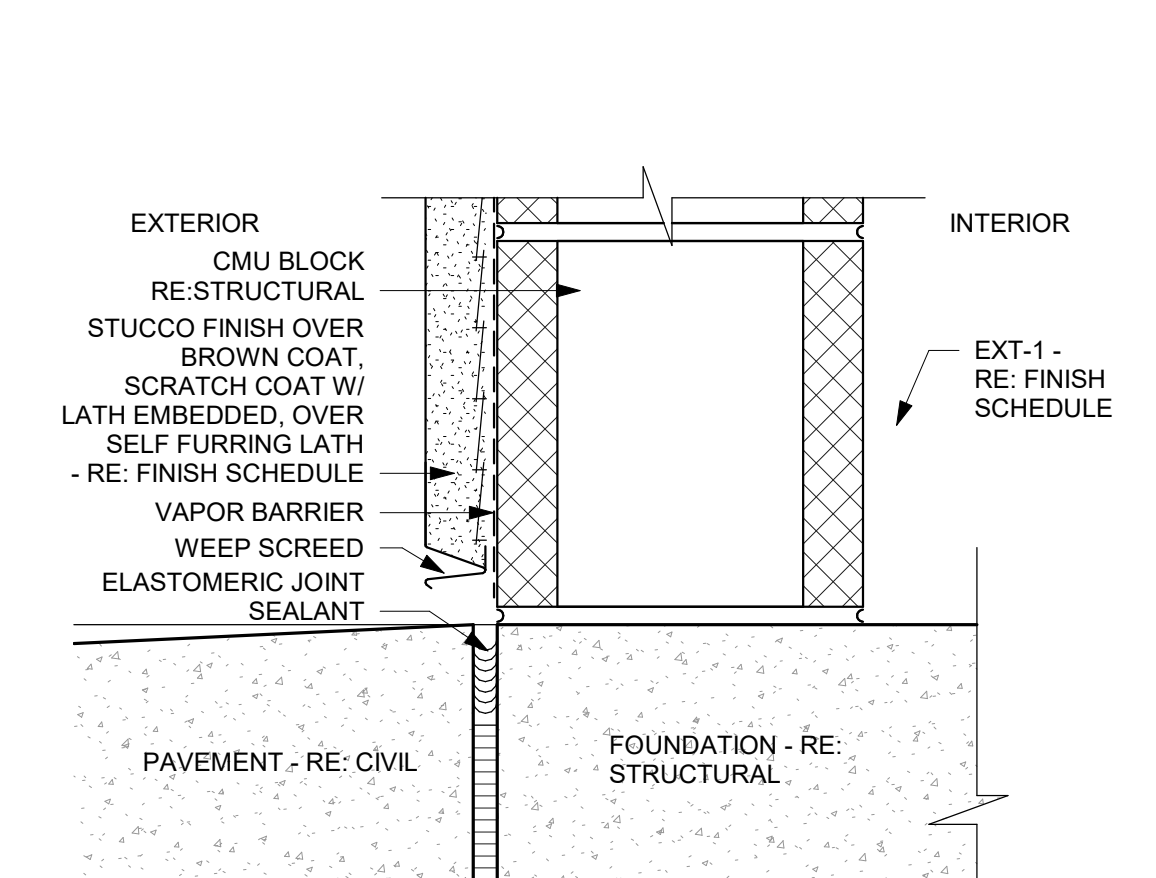
DETAIL - B.O. SILL @ CMU WALL
3" = 1'-0" 14



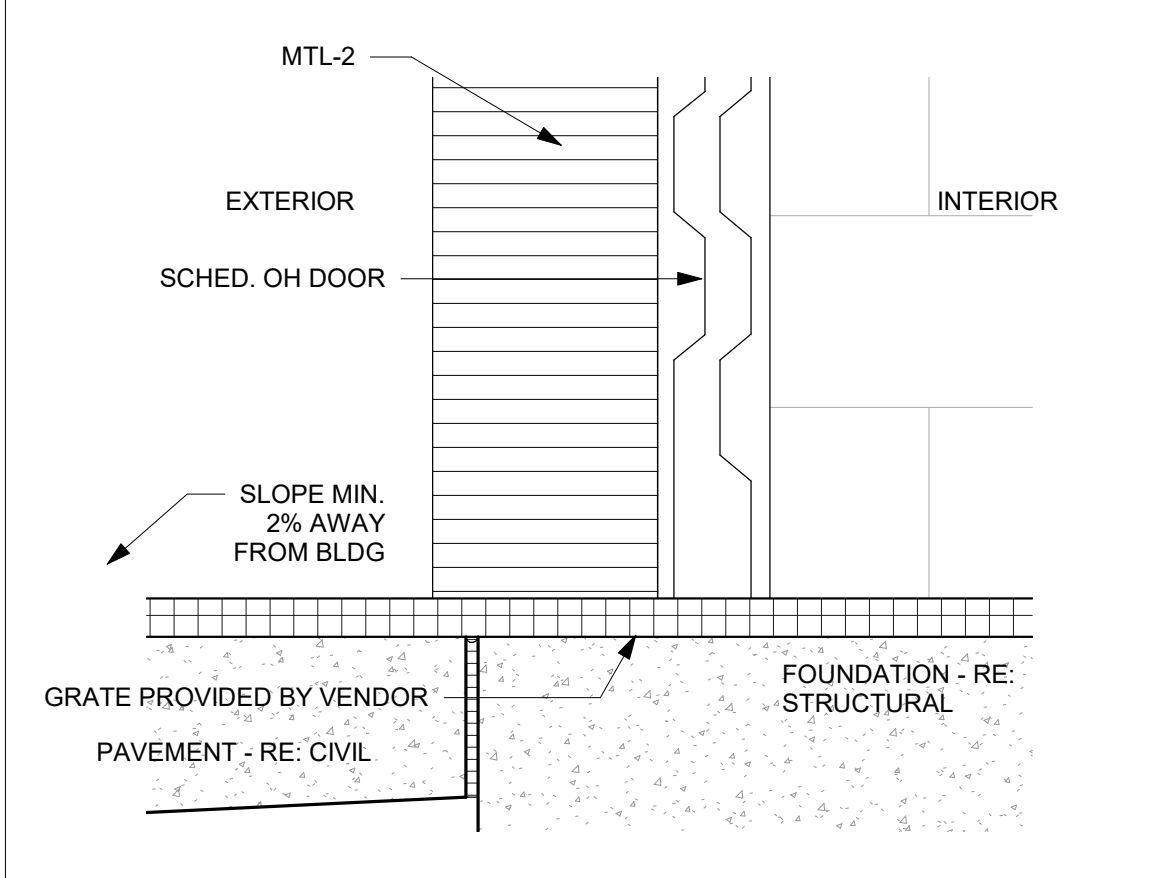
DETAIL - METAL PANEL LEDGE
3" = 1'-0" 17



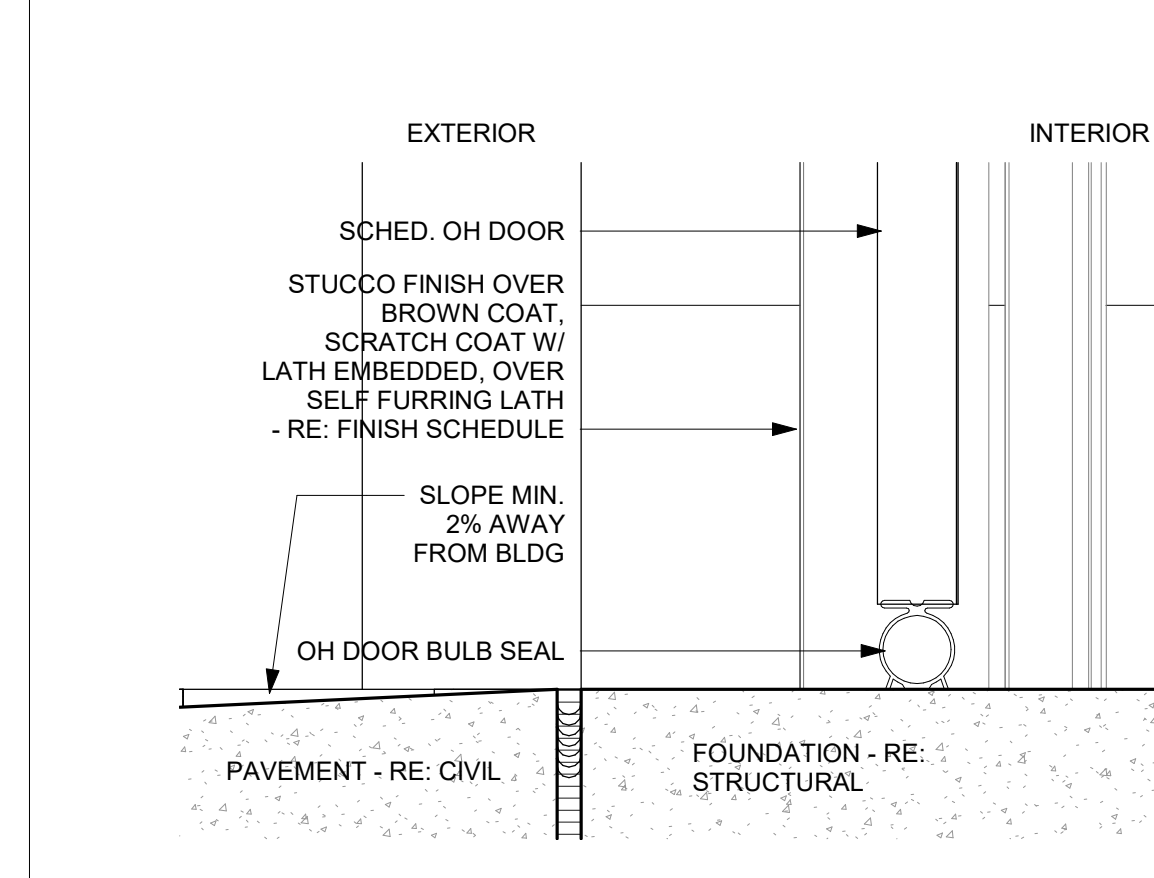
SILL DETAIL @ ALUM GLASS DOOR
3" = 1'-0" 13



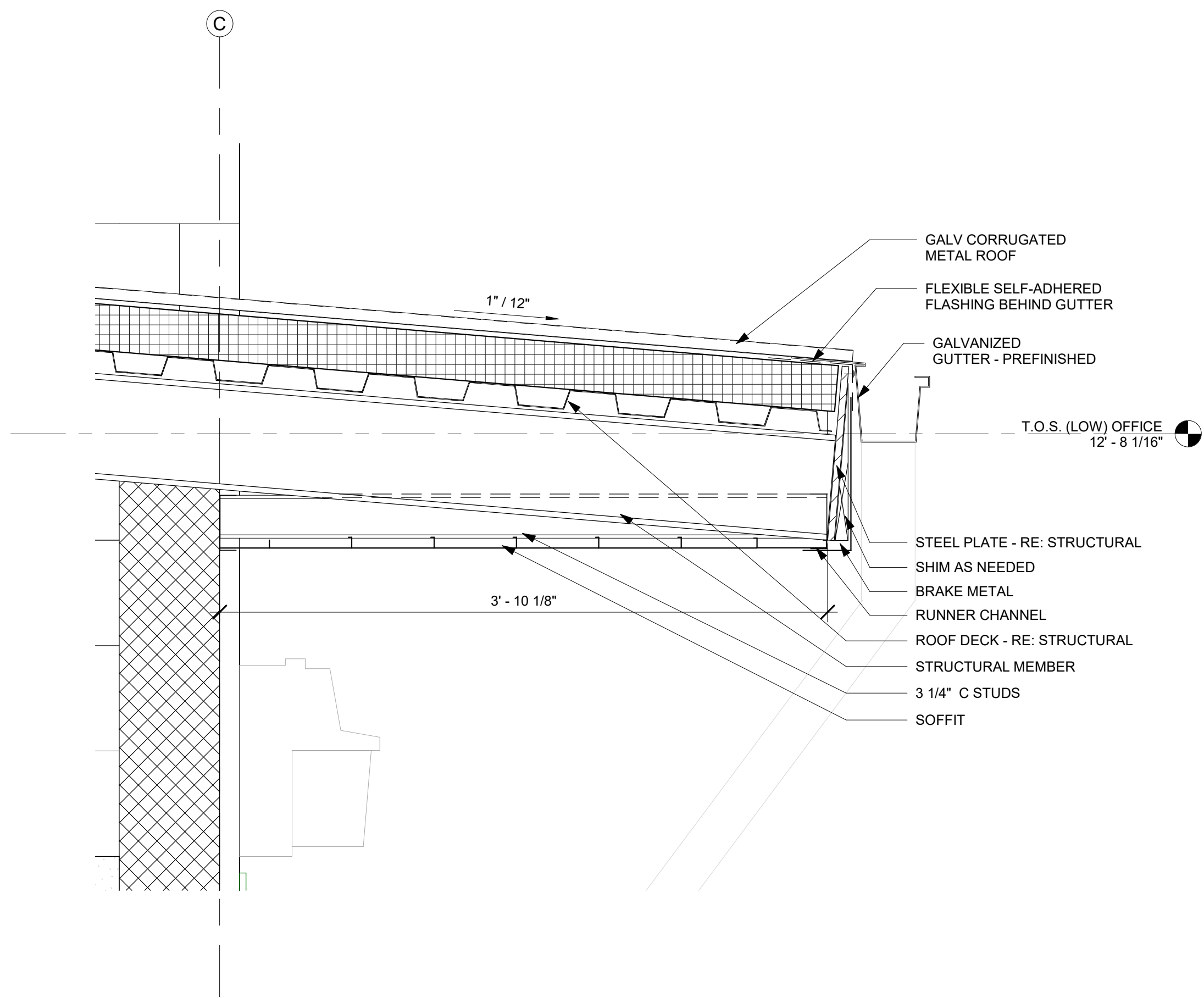
FOUNDATION DET. @ CMU WALL
3" = 1'-0" 9



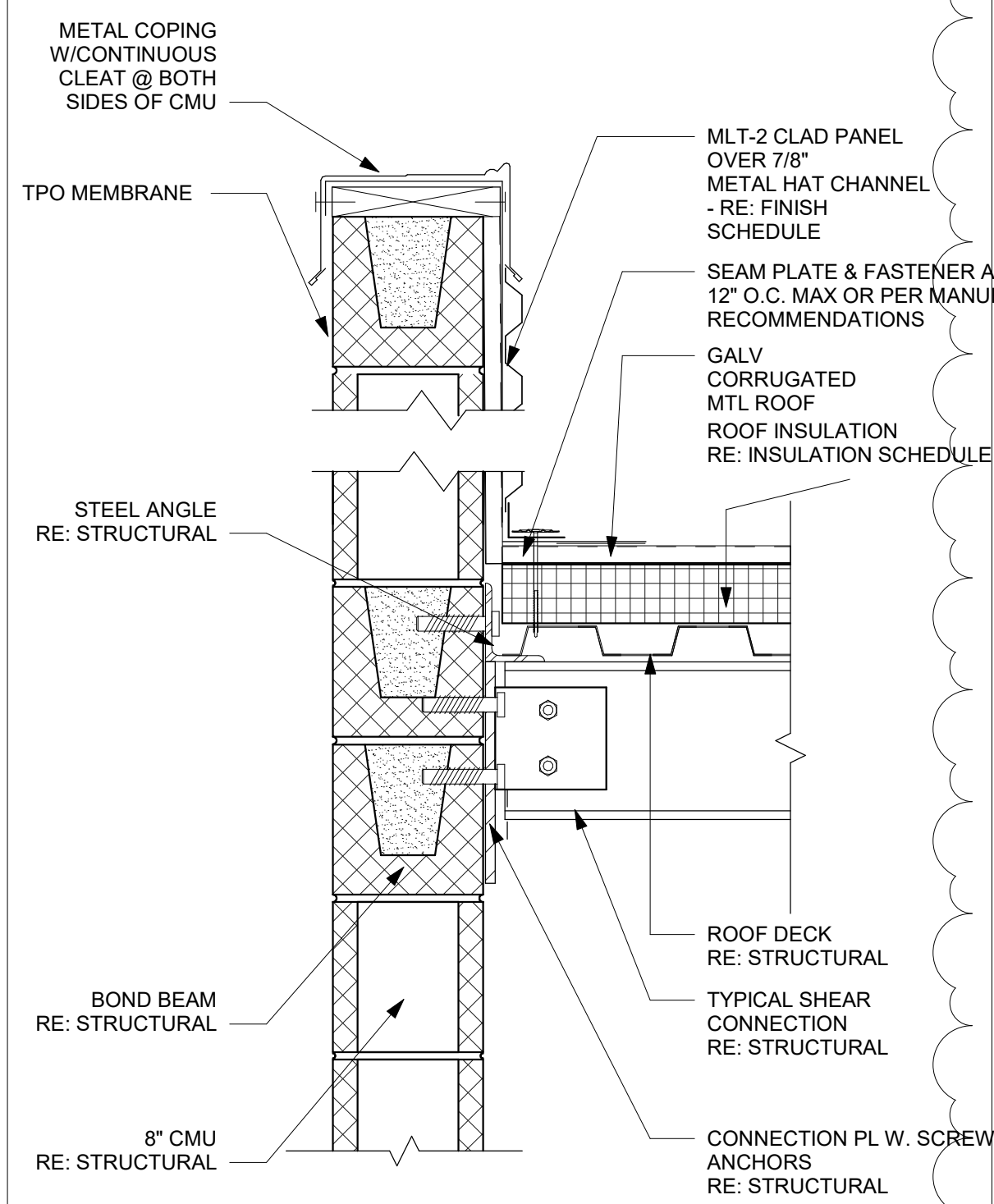
FOUNDATION DET. @ TUNNEL ENTRANCE
1 1/2" = 1'-0" 5



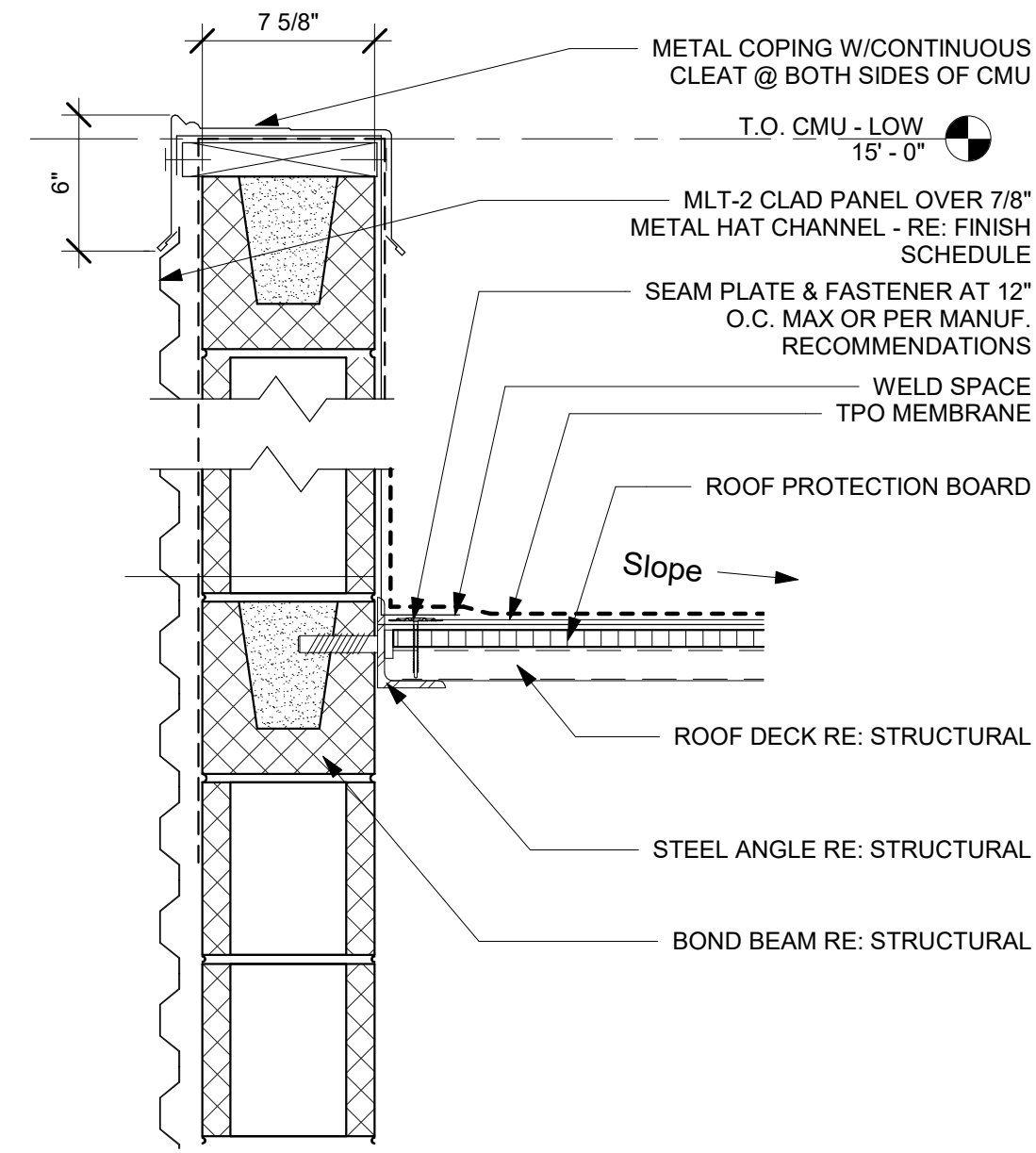
FOUNDATION DET. @ TUNNEL EXIT
3" = 1'-0" 1



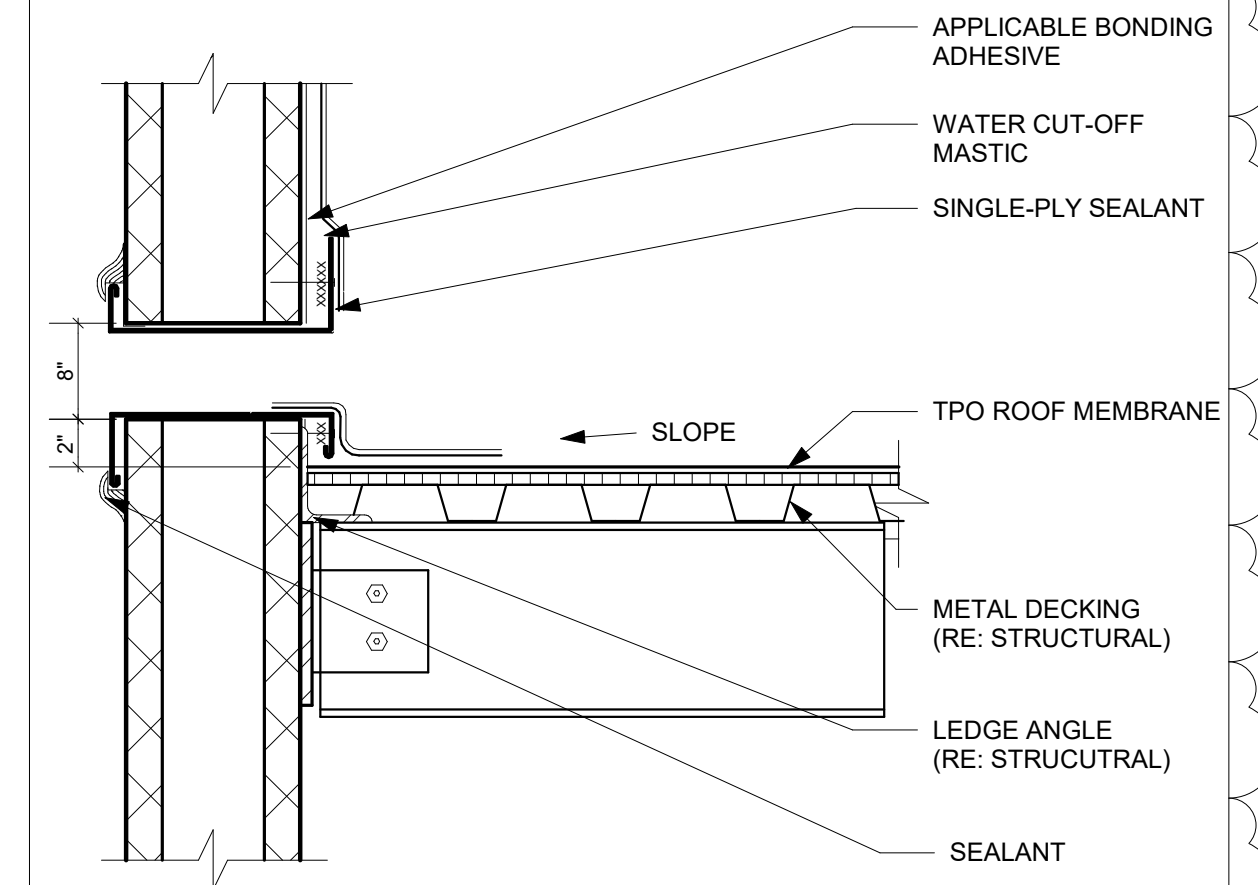
ROOF EDGE DETAIL - STANDING SEAM 15
1 1/2" = 1'-0"



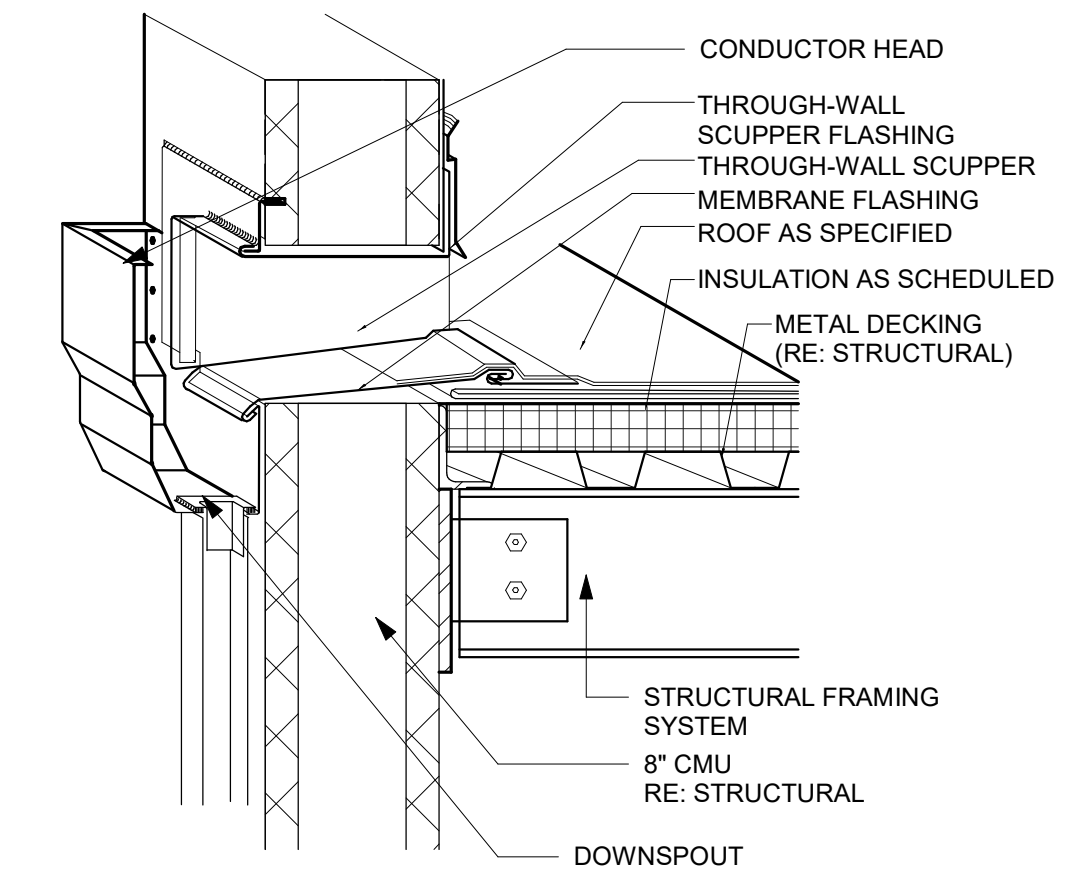
STANDING SEAM TO CMU - DETAIL 11
1 1/2" = 1'-0"



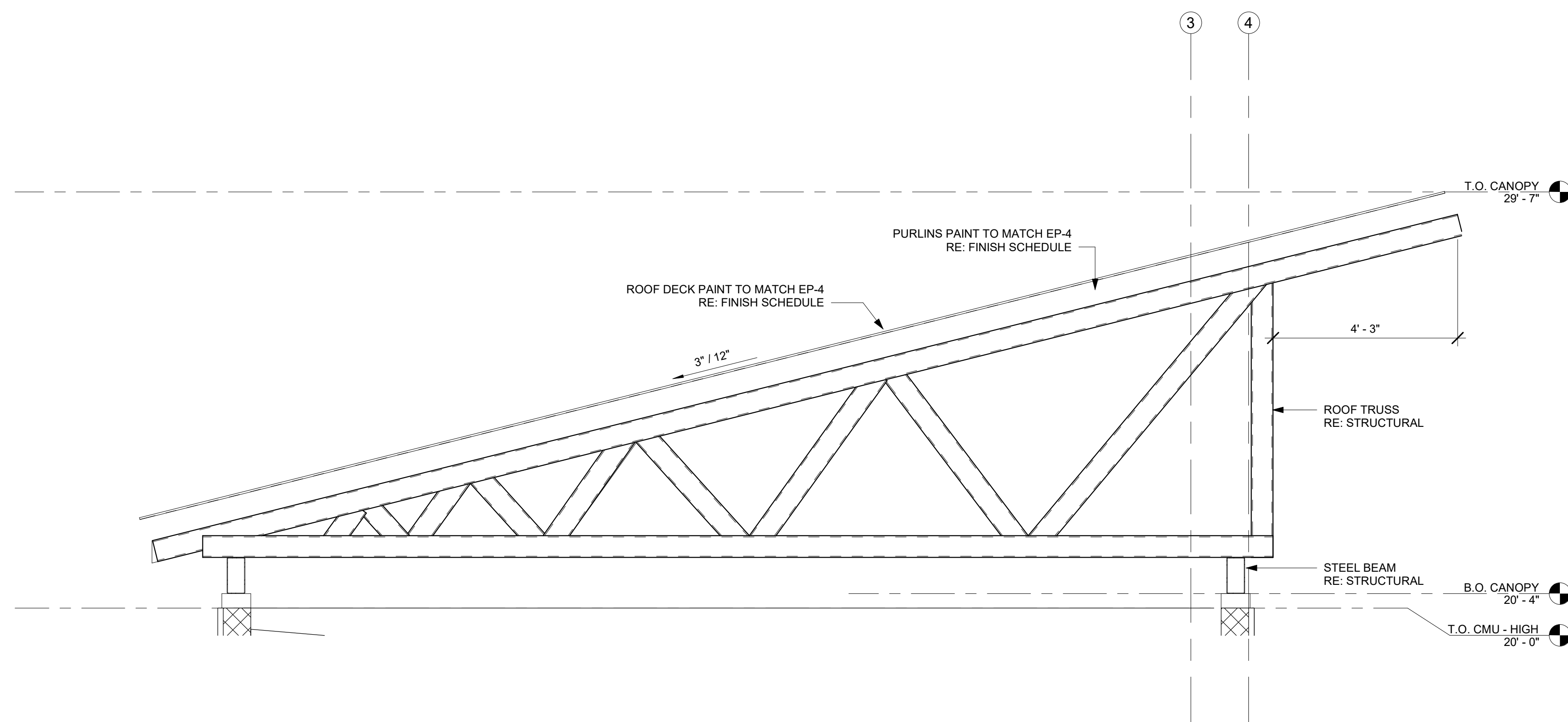
DETAIL - PARAPET AT EQUIPMENT ROOM 7
1 1/2" = 1'-0"



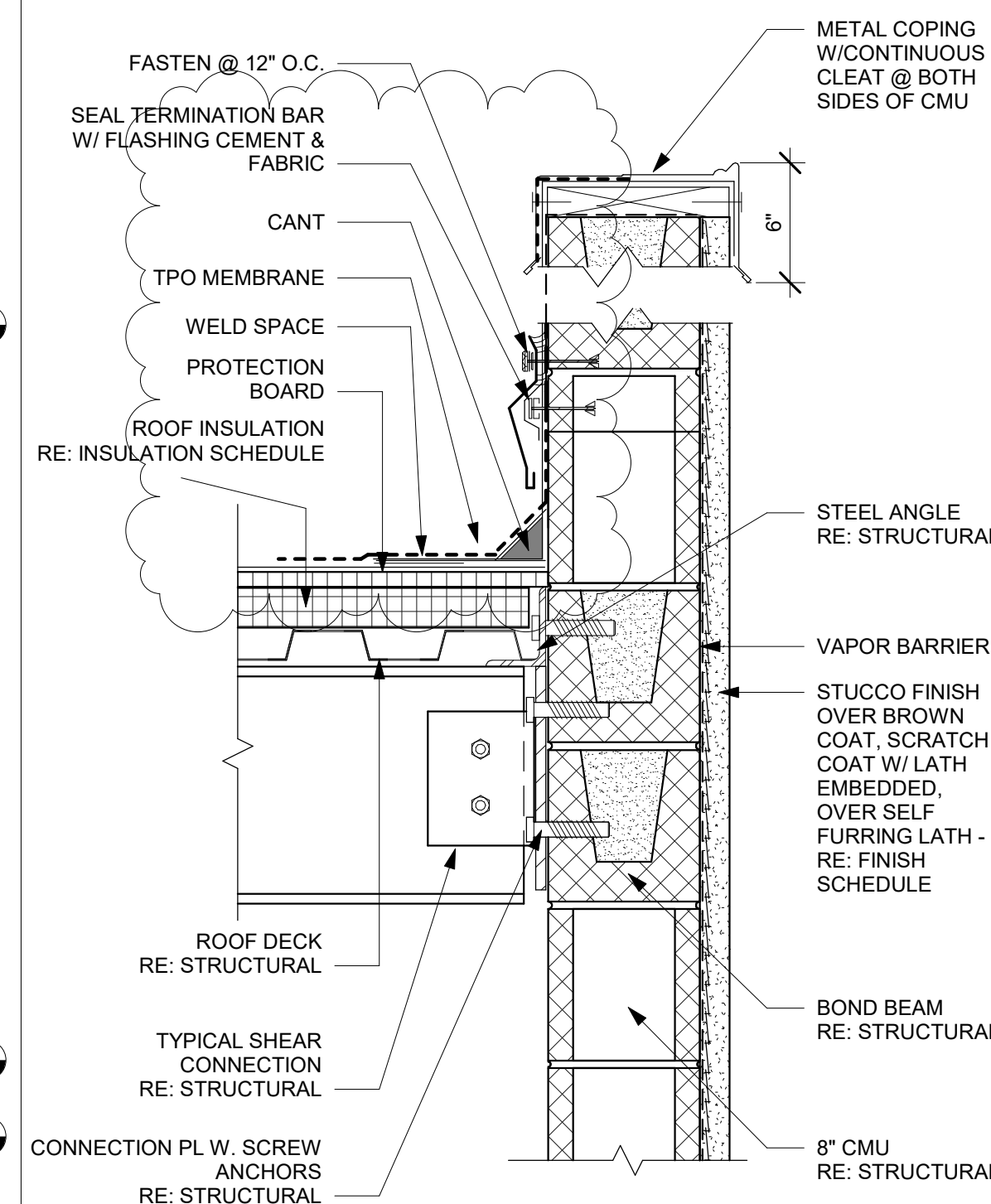
OVERFLOW DETAIL 4
1 1/2" = 1'-0"



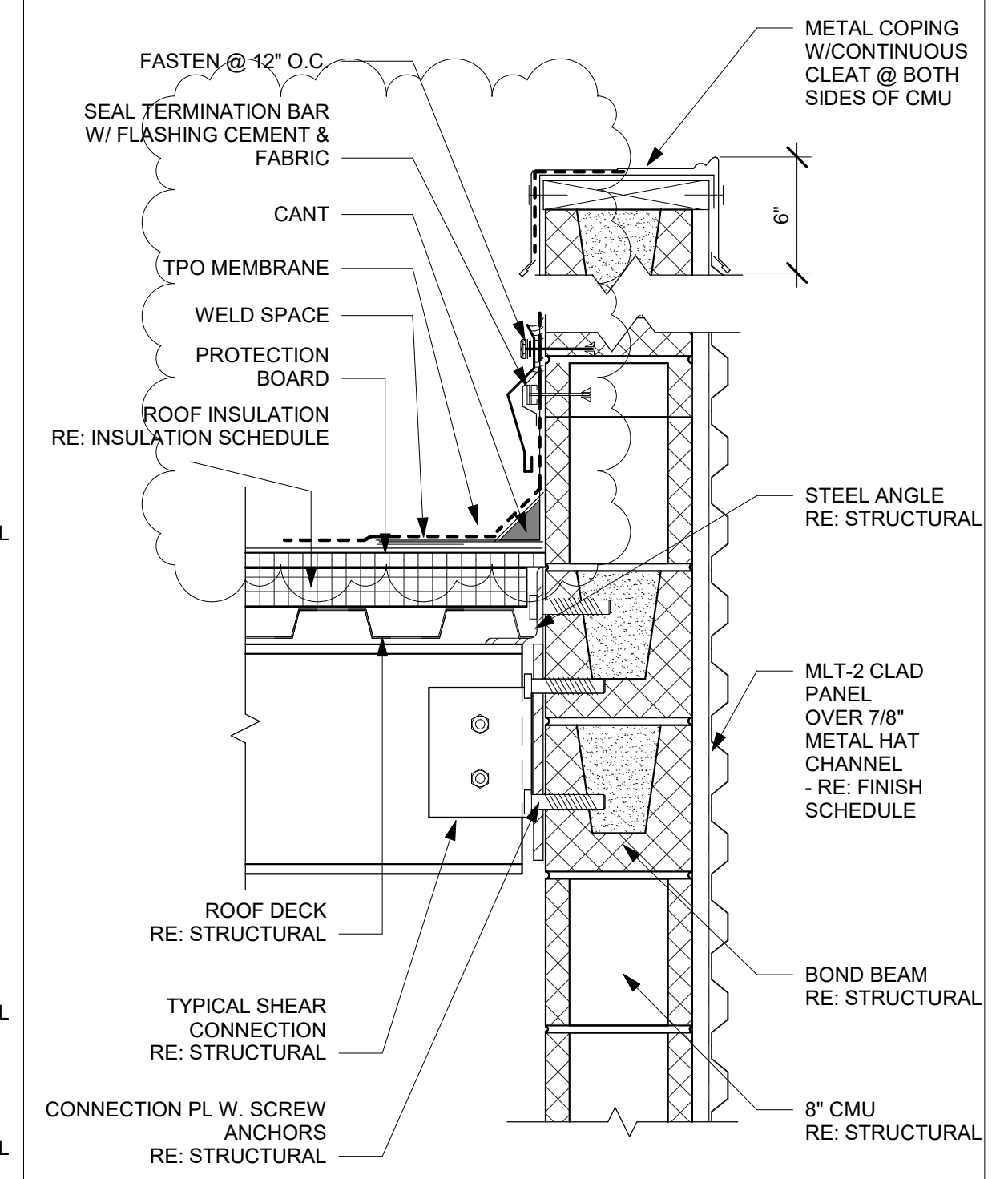
DETAIL - SCUPPER 3
1 1/2" = 1'-0"



ROOF TRUSS DETAIL 9
1/2" = 1'-0"

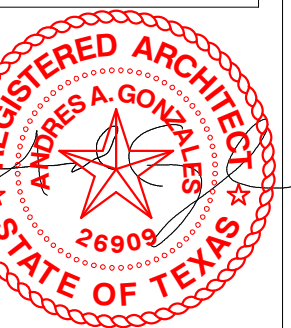


DETAIL - METAL COPING @ STUCCO 5
1 1/2" = 1'-0"



DETAIL - METAL COPING @ HWP PANEL 1
1 1/2" = 1'-0"

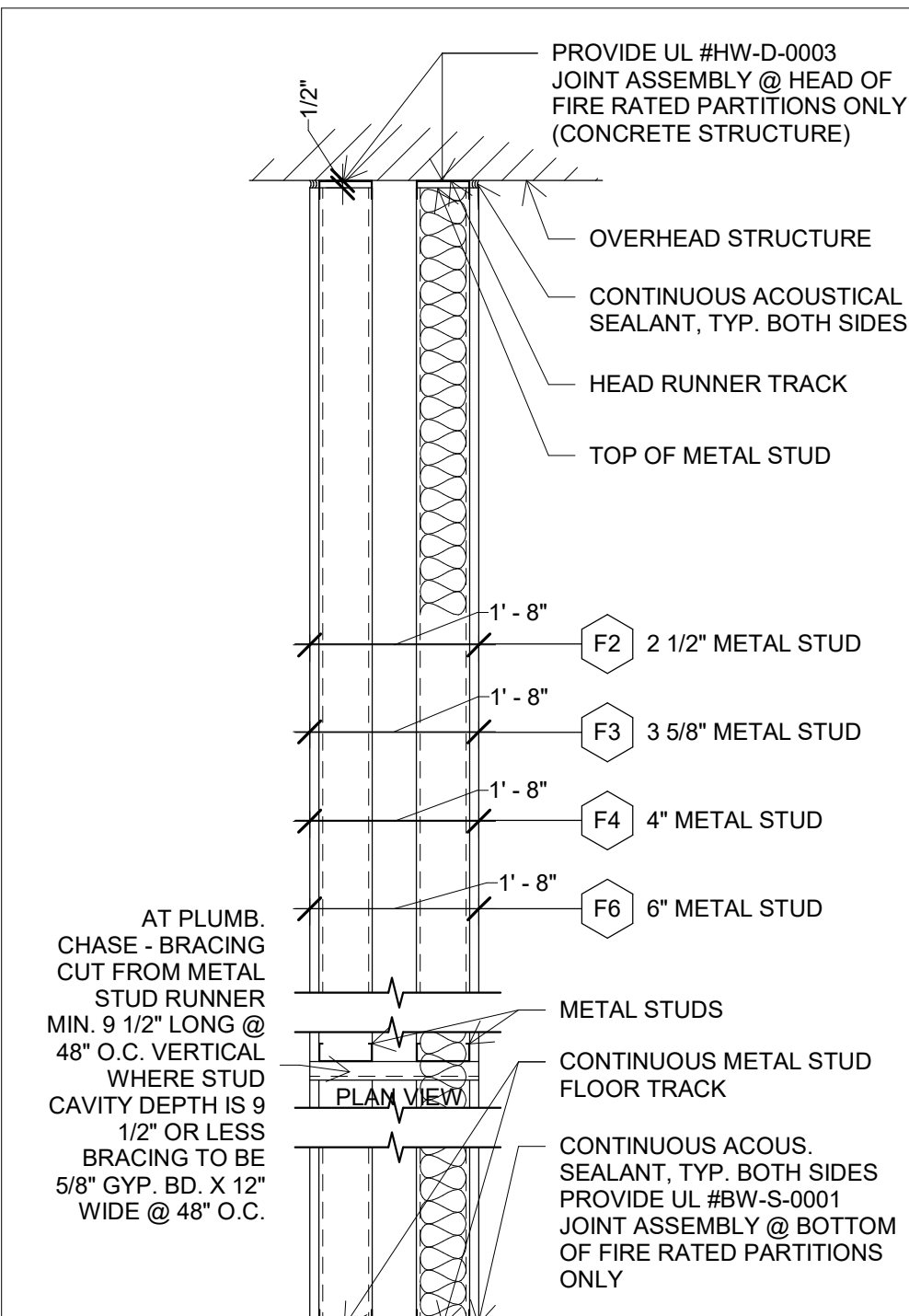
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METHOD ARCHITECTURE, LLC
REGISTERED ARCHITECT
ANDREW A. GOWAL
STATE OF TEXAS
26909

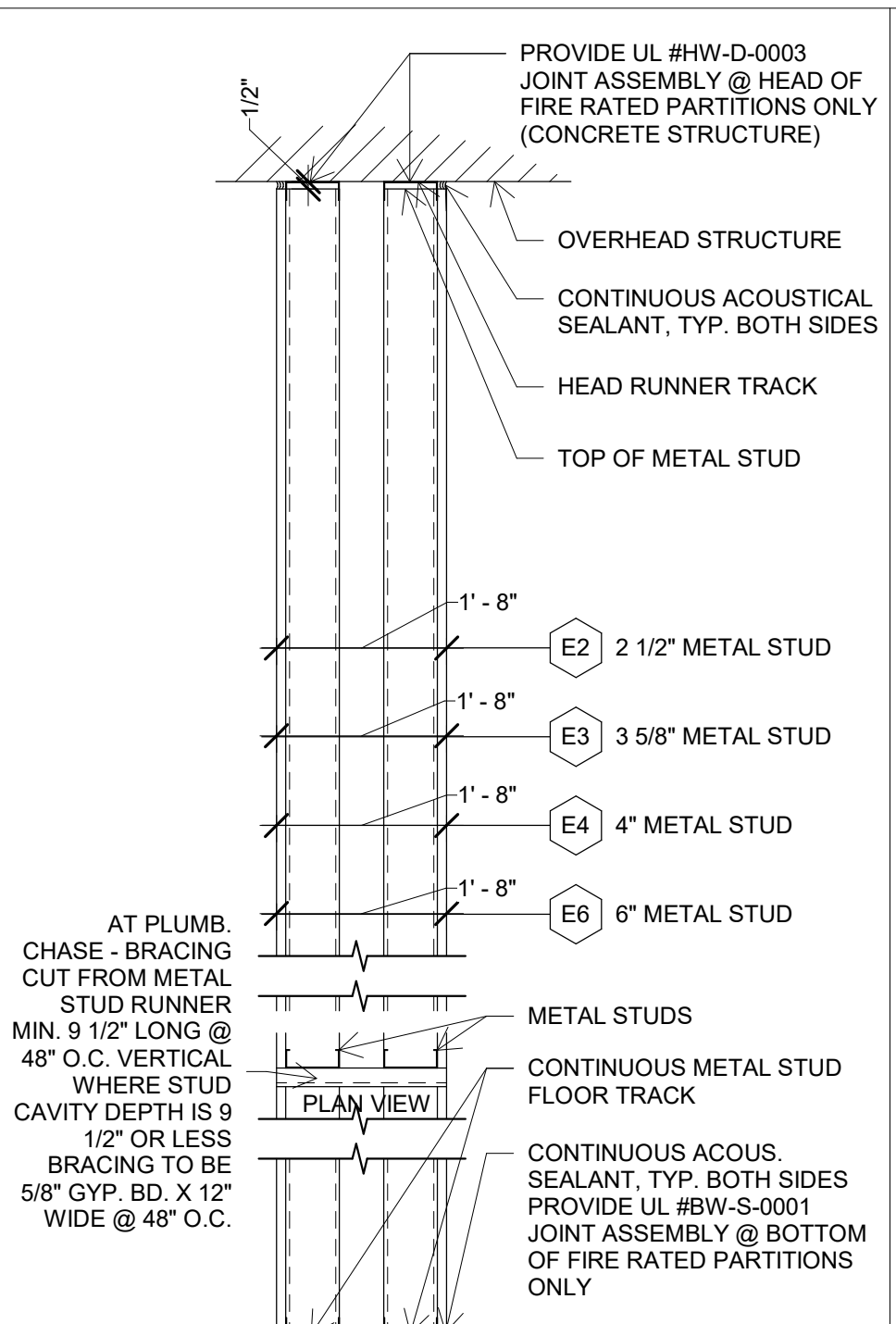
SUDS DELUXE CAR WASH
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PROJECT:
M22-02-B0035
SHEET:
A4.30
EXT ROOF DETAILS



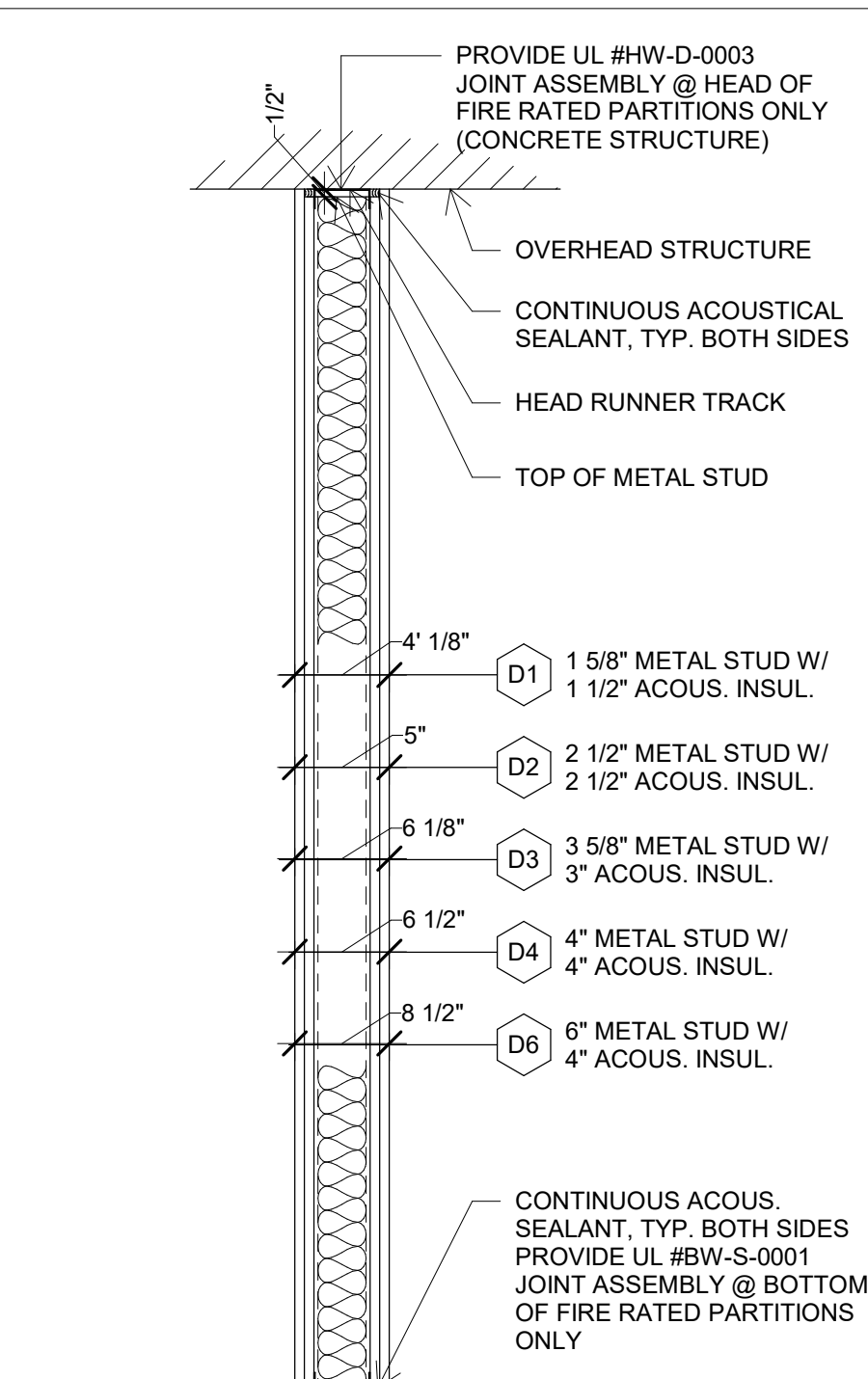
PARTITION TYPE 'F': TWO (2) METAL STUD CAVITY/CHASE W/ ONE (1) LAYER OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL HEIGHT ACOUSTICAL INSULATION ON ONE SIDE & W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
F2	1 HR.-UL #U420	STC 49
F3	1 HR.-UL #U420	STC 49+
F4	1 HR.-UL #U420	STC 49+
F6	1 HR.-UL #U420	STC 49+



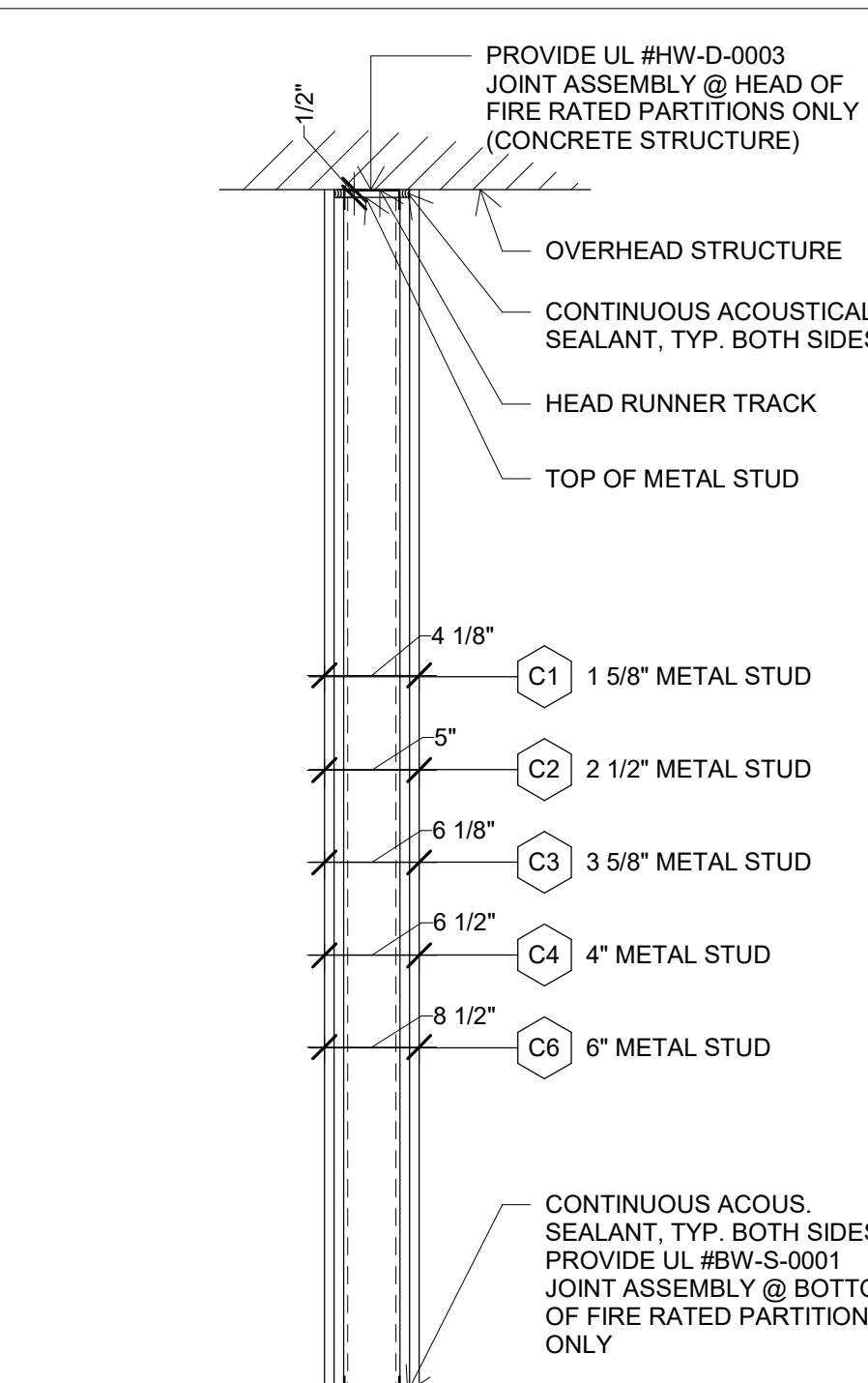
PARTITION TYPE 'E': TWO (2) METAL STUD CAVITY/CHASE W/ ONE (1) LAYER OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
E2	2 HR.-UL #U420	STC 42
E3	1 HR.-UL #U420	STC 42+
E4	1 HR.-UL #U420	STC 42+
E6	1 HR.-UL #U420	STC 42+



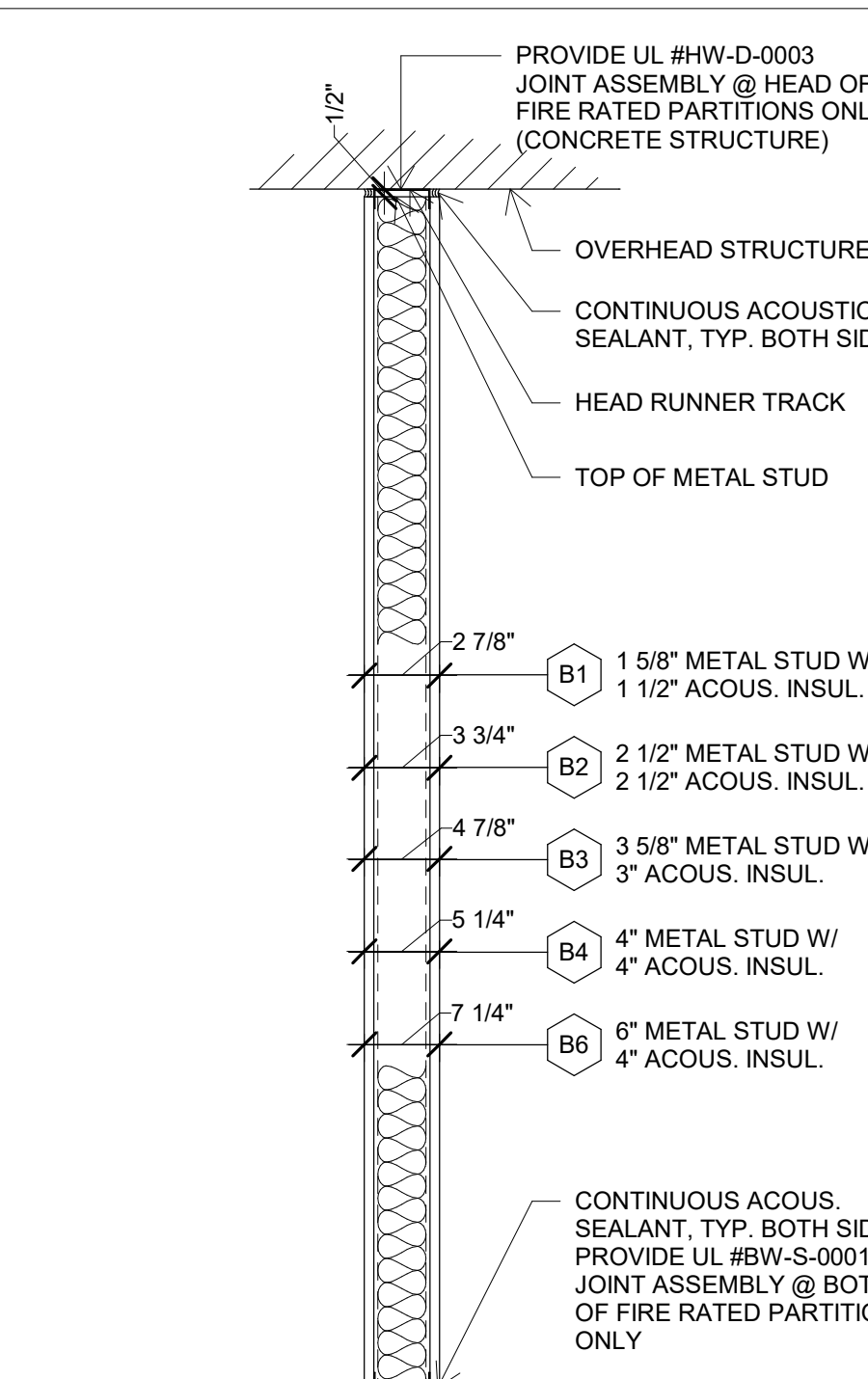
PARTITION TYPE 'D': TWO (2) LAYERS OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL HEIGHT ACOUSTICAL INSULATION & W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
D1	2 HR.-UL #U419	--
D2	2 HR.-UL #U411	STC 52
D3	2 HR.-UL #U411	STC 56
D4	2 HR.-UL #U411	STC 56+
D6	2 HR.-UL #U411	STC 56+



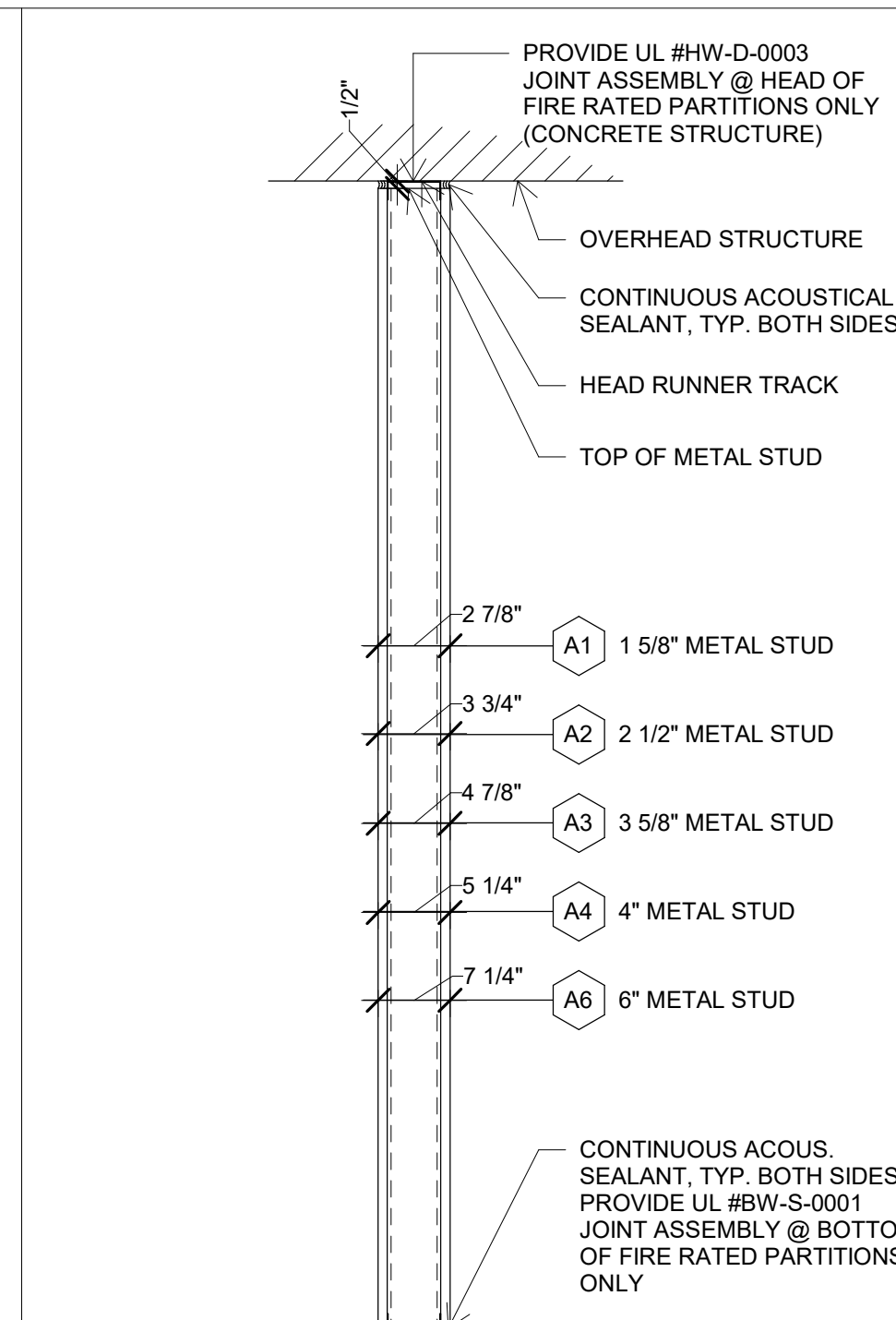
PARTITION TYPE 'C': TWO (2) LAYERS OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
C1	2 HR.-UL #U419	--
C2	2 HR.-UL #U411	STC 45
C3	2 HR.-UL #U411	STC 48
C4	1 HR.-UL #U465	STC 48+
C6	2 HR.-UL #U411	STC 48+



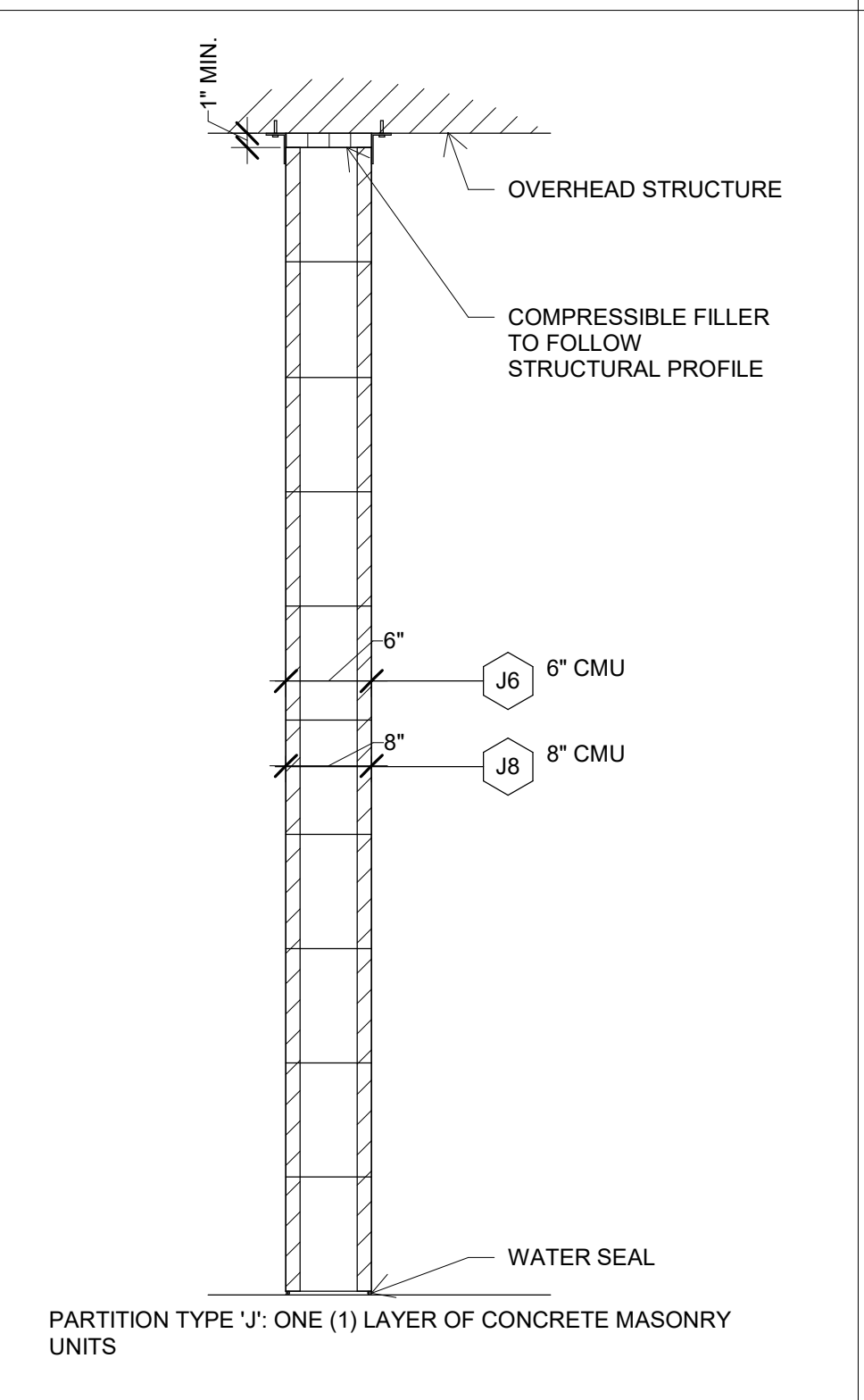
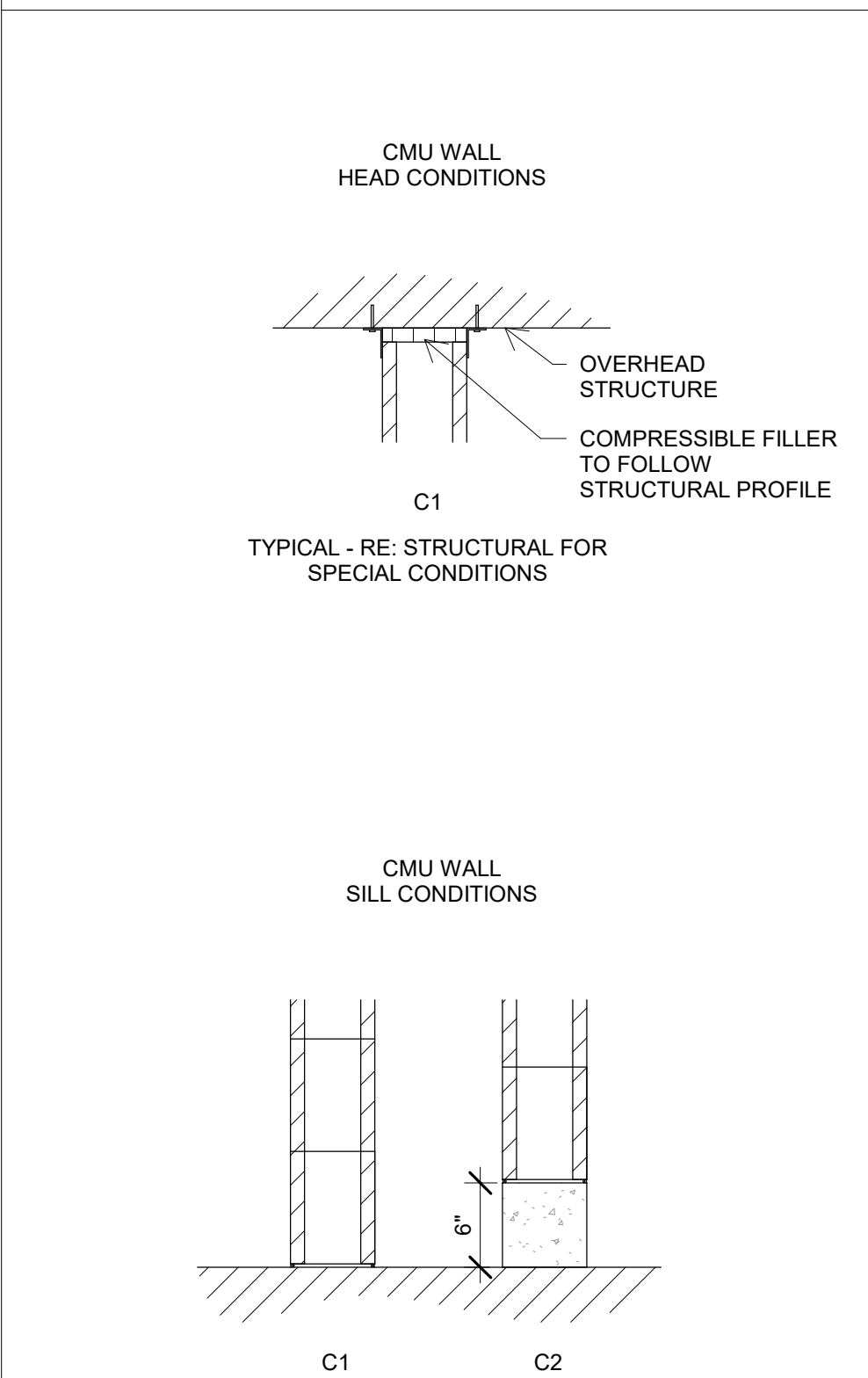
PARTITION TYPE 'B': ONE (1) LAYER OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL HEIGHT ACOUSTICAL INSULATION AND W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
B1	--	--
B2	1 HR.-UL #U419	STC 45
B3	1 HR.-UL #U465	STC 49
B4	1 HR.-UL #U465	STC 50
B6	1 HR.-UL #U419	STC 50+



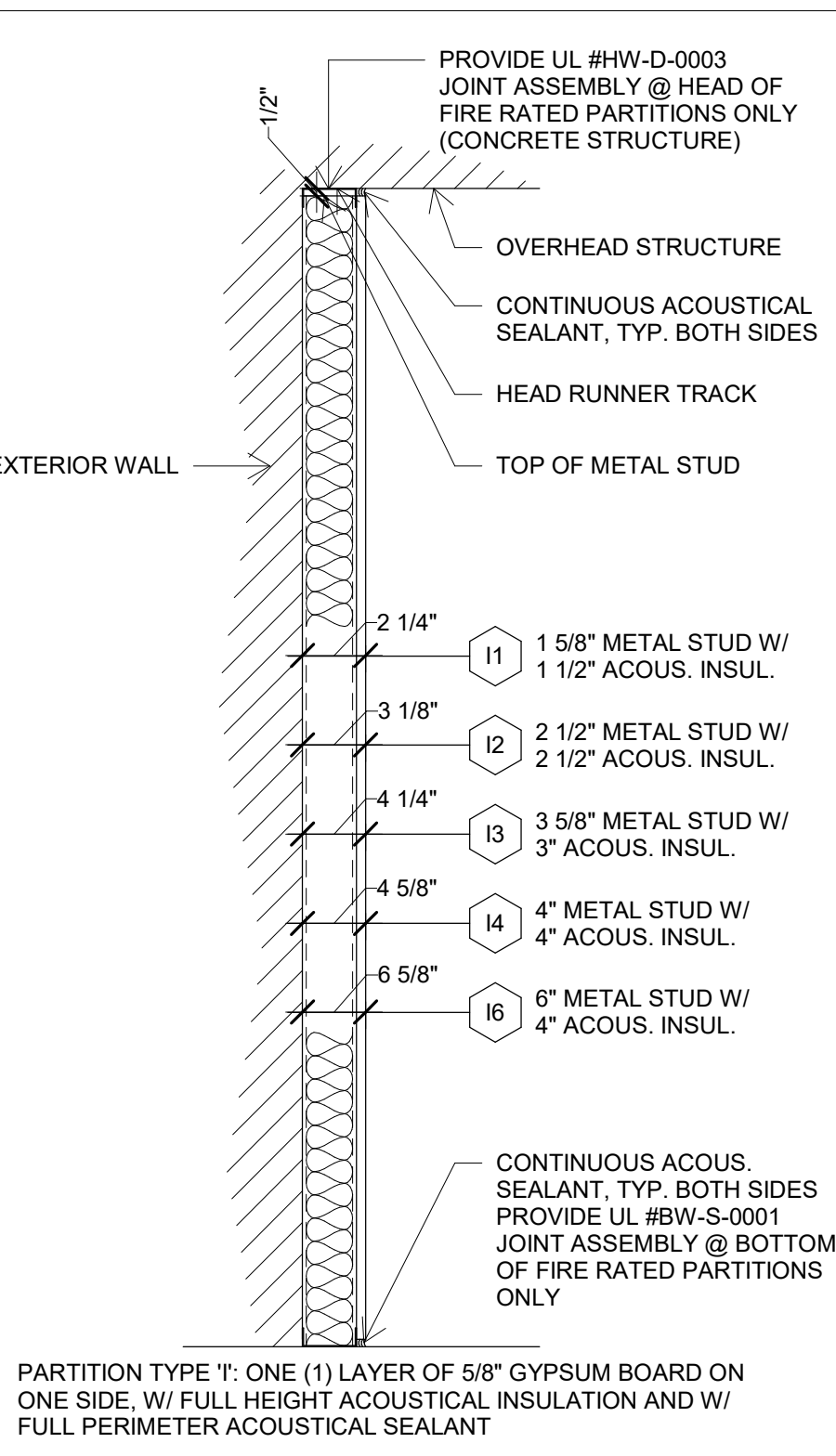
PARTITION TYPE 'A': ONE (1) LAYER OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
A1	--	--
A2	1 HR.-UL #U419	STC 38
A3	1 HR.-UL #U419	STC 40
A4	1 HR.-UL #U419	STC 40+
A6	1 HR.-UL #U419	STC 40+



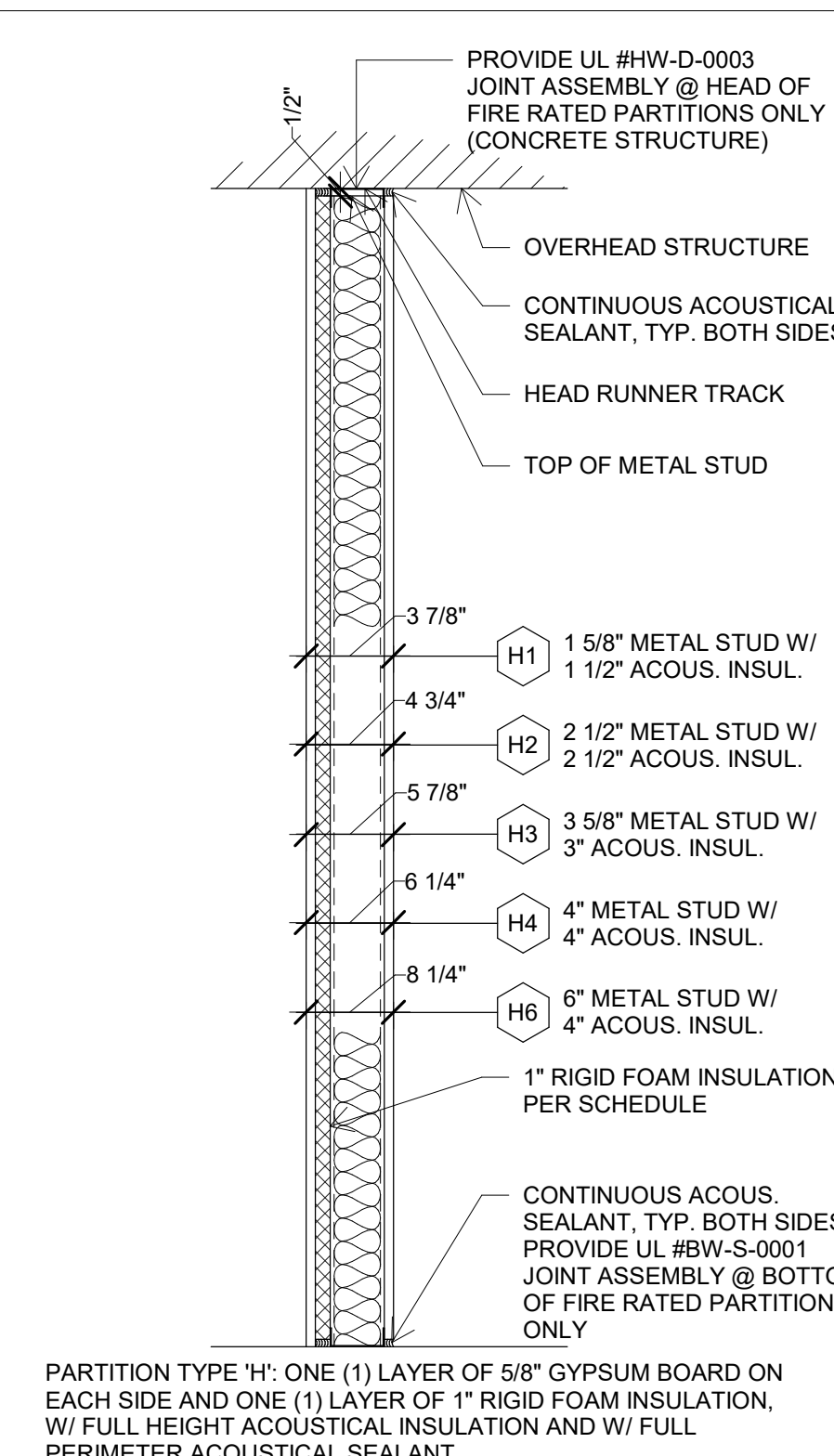
PARTITION TYPE 'J': ONE (1) LAYER OF CONCRETE MASONRY UNITS

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
J6	2 HR.-UL #U906	42+
J8	2 HR.-UL #U906	44+



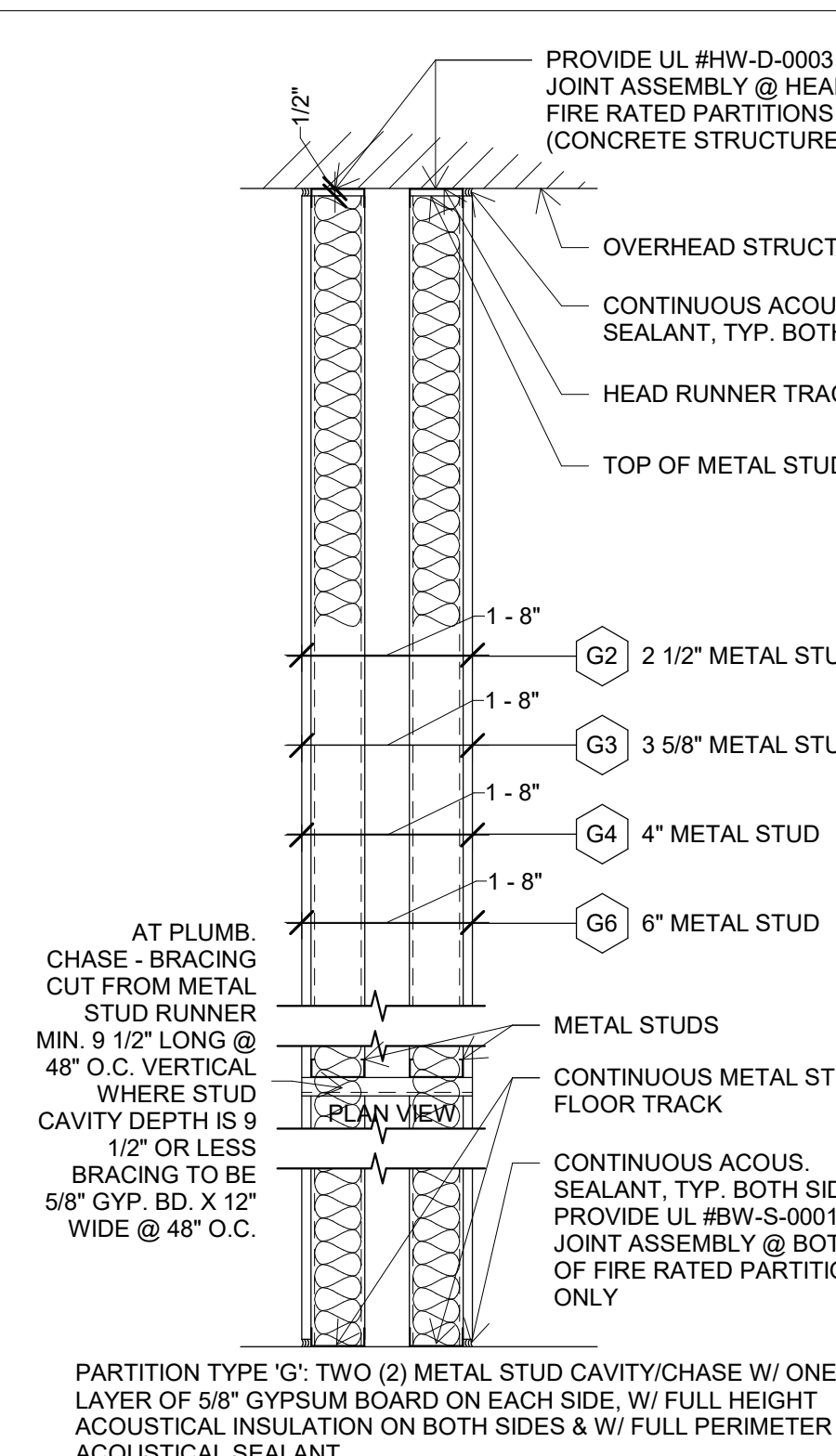
PARTITION TYPE 'I': ONE (1) LAYER OF 5/8" GYPSUM BOARD ON ONE SIDE, W/ FULL HEIGHT ACOUSTICAL INSULATION AND W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
I1	--	--
I2	--	--
I3	--	--
I4	--	--
I6	--	--



PARTITION TYPE 'H': ONE (1) LAYER OF 5/8" GYPSUM BOARD ON EACH SIDE AND ONE (1) LAYER OF 1" RIGID FOAM INSULATION, W/ FULL HEIGHT ACOUSTICAL INSULATION AND W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
H1	--	--
H2	--	STC 45
H3	--	STC 49
H4	--	STC 50
H6	--	STC 50+

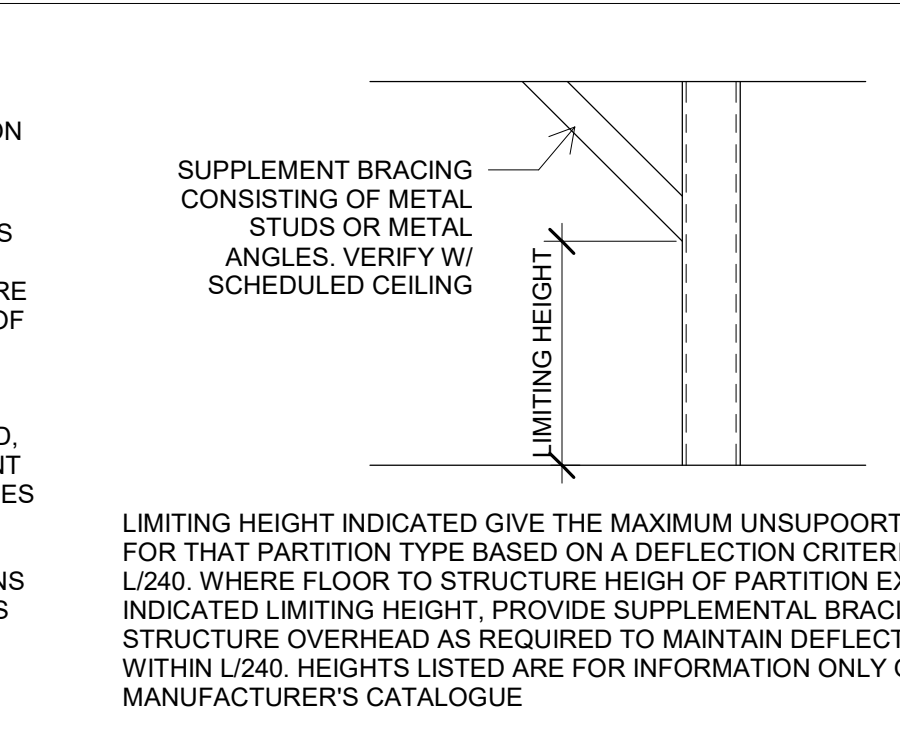
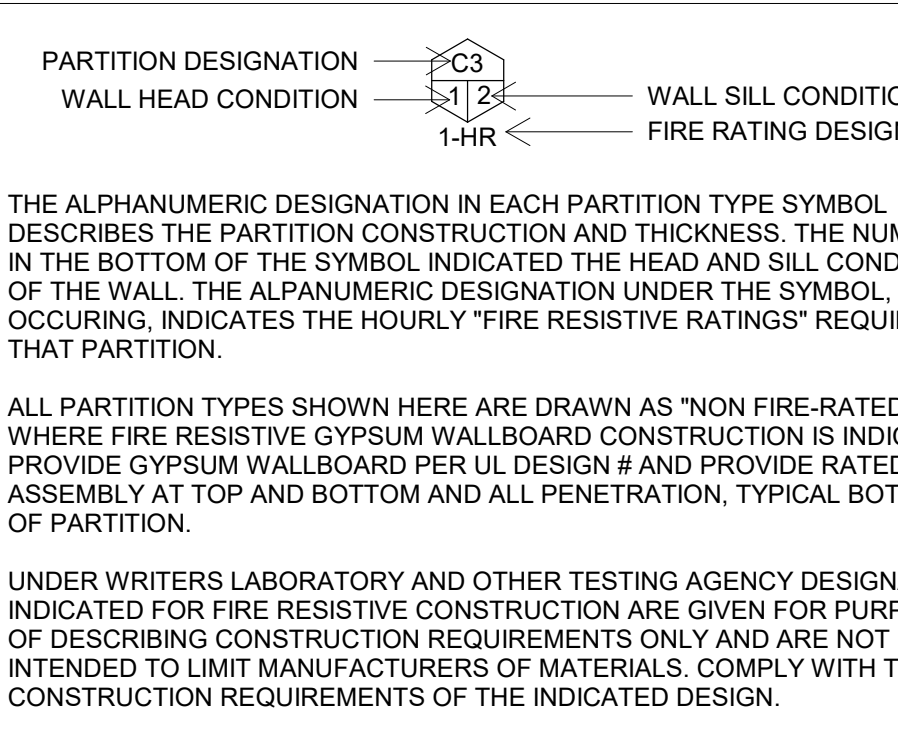
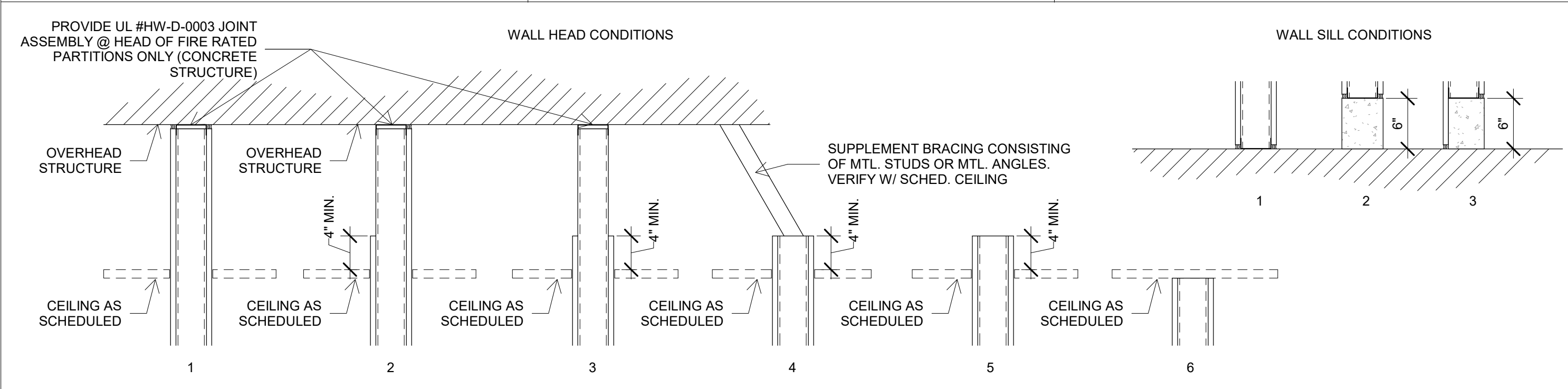


PARTITION TYPE 'G': TWO (2) METAL STUD CAVITY/CHASE W/ ONE (1) LAYER OF 5/8" GYPSUM BOARD ON EACH SIDE, W/ FULL HEIGHT ACOUSTICAL INSULATION ON BOTH SIDES & W/ FULL PERIMETER ACOUSTICAL SEALANT

PARTITION TYPE	MIN. FIRE RATING	MIN. STC RATING
G2	1 HR.-UL #U420	STC 52
G3	1 HR.-UL #U420	STC 55
G4	1 HR.-UL #U420	STC 55+
G6	1 HR.-UL #U420	STC 55+

STUD	SIZE	SPACING (INCHES) O.C.	LIMITING HEIGHT (MAXIMUM)		NOTES
			NON-COMPOSITE (5 PSF L/240)	COMPOSITE (5 PSF L/240)	
2 1/2-INCH	2 1/2" x 1 1/4" x 25 GA.	16	9'-0"	11'-3"	4, 5, 6
	2 1/2" x 1 1/4" x 20 GA.	16	11'-7"	12'-10"	4, 5, 6
	2 1/2" x 1 1/4" x 18 GA.	16	13'-0"	14'-9"	4, 5, 6
3 5/8-INCH	3 5/8" x 1 1/4" x 25 GA.	16	12'-0"	14'-4"	4, 5, 6
	3 5/8" x 1 1/4" x 20 GA.	16	15'-0"	16'-5"	4, 5, 6
	3 5/8" x 1 1/4" x 18 GA.	16	16'-11"	18'-0"	4, 5, 6
	3 5/8" x 1 1/4" x 16 GA.	16	18'-1"	19'-7"	4, 5, 6
4-INCH	4" x 1 1/4" x 25 GA.	16	13'-9"	15'-4"	4, 5, 6
	4" x 1 1/4" x 20 GA.	16	16'-8"	18'-4"	4, 5, 6
	4" x 1 1/4" x 18 GA.	16	18'-9"	19'-5"	4, 5, 6
6-INCH	6" x 1 1/4" x 20 GA.	16	23'-1"	24'-6"	4, 5, 6
	6" x 1 1/4" x 18 GA.	16	26'-0"	28'-3"	4, 5, 6
	6" x 1 1/4" x 16 GA.	16	27'-11"	30'-0"	4, 5, 6
	6" x 1 1/4" x 14 GA.	16	29'-11"	32'-0"	4, 5, 6
8-INCH	8" x 1 1/4" x 18 GA.	16	33'-1"	34'-4"	4, 5, 6
	8" x 1 1/4" x 16 GA.	16	35'-6"	36'-8"	4, 5, 6
	8" x 1 1/4" x 14 GA.	16	38'-1"	39'-9"	4, 5, 6

- NOTES
- COMPOSITE WALL SHEATHED BOTH SIDES, FULL HEIGHT WITH GYPSUM BOARD WITH #6 SCREWS MINIMUM AT 12" O.C. MAX.
 - 50 KSI MINIMUM YIELD
 - INTERIOR STUD TABLE INFORMATION IS TAKEN FROM THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA)
 - MINIMUM G40 (HOT-DIPPED GALVANIZED) COATING, NO EQUIVALENT COATING ARE ACCEPTABLE
 - THE MAXIMUM LIMITING HEIGHTS DO NOT APPLY TO PARTITIONS WITH CERAMIC TILE, PLASTER, OR WALLS SUPPORTING DECK ABOVE
 - ALL STUDS ARE TO BE FULLY BRACED AT TOP AND BOTTOM



FOR PARTITION WITH "BRITTLE" FINISHES SUCH AS PLASTER AND CERAMIC TILE, DESIGN PARTITION SYSTEM TO MAINTAIN DEFLECTION RATIO WITH L/360

SUSPENDED CEILING SHALL NOT BE CONSIDERED AS BRACING

WHERE GYPSUM WALLBOARD IS THE SUBSTRATE FOR APPLICATION OF CERAMIC TILE, PROVIDE "WATER-RESISTANT" BOARD. WHERE FIRE RESISTIVE CONSTRUCTION IS INDICATED, PROVIDE FIRE RESISTIVE W/IR BOARD.

STC PERFORMANCE RATINGS TO BE PROVIDED WHERE NECESSARY. WHERE AN STC PERFORMANCE IS PROVIDED, RATINGS SHOWN FOR SOUND WALLS ARE BASED ON LABORATORY TESTED ASSEMBLIES AND DO NOT NECESSARILY INDICATE THE ACTUAL STC RATING OF THE COMPLETED WORK. PROVIDE MTL. DECK FILLERS WHERE FULL HEIGHT PARTITIONS ARE PERPENDICULAR TO SPAN OF DECK. DECK FILLERS ARE TO BE COMPATIBLE WITH ALL FIRE RATED ASSEMBLIES AND ARE TO BE APPROVED BY ALL GOVERNING AGENCIES.

REFER TO FINISH SCHEDULE AND INTERIOR ELEVATIONS FOR APPLIED FINISHES TO PARTITIONS.

METHOD architecture
2118 LAMAR, SUITE 200
HOUSTON, TEXAS 77003
(713) 842-7500

ISSUED FOR PERMIT
1/09/2022

REGISTERED ARCHITECT
ANDRES A. GONZALEZ
26909
STATE OF TEXAS

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HOUSTON, TEXAS 77003
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SUDS DELUXE CAR WASH
SAN MARCOS

IH: 35 & CHISOS
SAN MARCOS, TEXAS 78666

PROJECT: M22-02-B0035
SHEET: A5.00
INT PARTITIONS

DOOR SCHEDULE												
MARK	FUNCTION	HEIGHT	WIDTH	DOOR TYPE	FIRE RATING	DOOR MATERIAL	DOOR FINISH	GLAZING	FRAME MATERIAL	FRAME FINISH	HARDWARE	COMMENTS
100	Exterior	7' - 0"	3' - 0"	E		AL	CLR	GL-1	AL	CLR	HW-3	MEDIUM STILE
102	Exterior	7' - 0"	3' - 1"	E		AL	CLR	GL-1	AL	CLR	HW-3	MEDIUM STILE
103	Interior	7' - 0"	3' - 0"	D		SC	PLAM	-	AL	PNT	HW-4	
105	Interior	7' - 0"	3' - 0"	D		HM	PNT	-	HM	PNT	HW-5	
105A	Interior	7' - 0"	3' - 0"	D		EXTRUTECH	-	-	EXTRUTECH	-	HW-5	
106	Interior	7' - 0"	3' - 0"	D		HM	PNT	-	HM	PNT	HW-5	
107	Exterior	7' - 0"	3' - 0"	E		AL	CLR	GL-1	AL	CLR	HW-1	MEDIUM STILE
D107A	Exterior	12' - 0"	14' - 0"	B								1, 2
D107B	Exterior	12' - 0"	14' - 0"	A								1, 2
D108A	Exterior	7' - 0"	6' - 4"	C		HM	PNT	-	HM	PNT	HW-2	

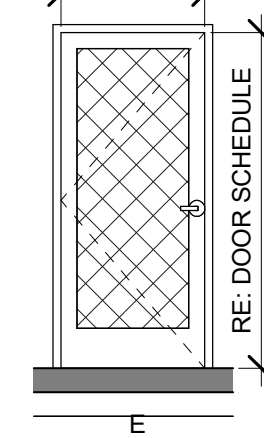
NOTES:

1. PROVIDE STAINLESS STEEL HARDWARE.
2. PROVIDE 6" ALUMINUM ANGLE AT BOTTOM RAIL TO NOTCH AROUND CONVEYOR RAILS AND/OR TO MATCH FLOOR SLOPES.

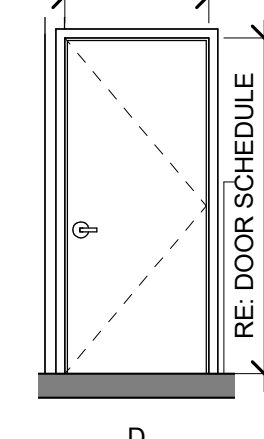
DOOR & HARDWARE MATERIAL LEGEND			
MARK	DESCRIPTION	MARK	DESCRIPTION
FIRE RATING		GLAZING	
# MIN	REQUIRED MINUTE FIRE RATING	GL-1	FULLY TEMPERED
SMOKE	SMOKE RESISTIVE OR SMOKE LABELED	GL-2	INSULATED, LOW-E, CLEAR
DOOR MATERIAL		GL-3	FULLY TEMPERED AND OBTAINED
AL	ALUMINUM	GL-4	FIRE RATED PER SCHEDULE
HM	HOLLOW METAL	FRAME MATERIAL	
SC	SOLID CORE	AL	ALUMINUM
HC	HOLLOW CORE	HM	HOLLOW METAL (PAINTED)
ST	STEEL	WD	WOOD (PAINTED OR STAINED)
DOOR FINISH		ST - WD	STEEL WITH APPLIED WOOD TRIM
PLAM	PLASTIC LAMINATE	HM - WD	HOLLOW METAL WITH APPLIED WOOD TRIM
PNT	PAINTED	GYP	GYPSUM BOARD
STN	STAINED		
HARDWARE AND FRAME FINISH			
PNT	PAINTED		
BRZ	BRONZE PER MANUFACTURER		
CLR	CLEAR ANODIZED PER MANUFACTURER		

HARDWARE SCHEDULE			
SET	QUANTITY	DESCRIPTION	REMARKS
HW-1			
EXTERIOR STOREFRONT DOORS	1	PIVOTS	MANUFACTURERS STANDARD PIVOTS
	1	LOCK / LATCH SET	STANDARD LOCK, PULL HANDLE, PUSH BAR
	1	CLOSER	LON 4040 SERIES UNIT IN STANDARD FINISH, INTERIOR MOUNTED
	1	STOPS	RAISED FLOOR STOP
	1	SILENCERS	AS PROVIDED BY DOOR FRAME MANUFACTURER
	1	WEATHERSTRIP	MANUFACTURERS STANDARD FELT WEATHER STRIPPING
	1	DOOR SWEEP	MANUFACTURERS STANDARD DOOR SWEEP
	1	THRESHOLD	MANUFACTURERS STANDARD THRESHOLD
	1	RAIN DRIP CAP	PEMCO 346C RAIN DRIP CAP
HW-2			
EXTERIOR DOUBLE SERVICE DOORS	6	HINGE	4-1/2" X 4-1/2"
	1	LOCK / LATCH SET	STANDARD LOCK CORE, FUNCTION 81, SEE NOTE 12 SILL AND HEAD BOLTS
	2	STOPS	RAISED FLOOR STOP
	2	SILENCERS	AS PROVIDED BY DOOR FRAME MANUFACTURER
	2	CLOSER	LON 4040 SERIES UNIT IN STANDARD FINISH
	1	WEATHERSTRIP	MANUFACTURERS STANDARD FELT WEATHER STRIPPING
	2	DOOR SWEEP	MANUFACTURERS STANDARD DOOR SWEEP
	2	THRESHOLD	MANUFACTURERS STANDARD THRESHOLD
	2	RAIN DRIP CAP	PEMCO 346C RAIN DRIP CAP
HW-3			
INTERIOR STOREFRONT DOORS	1	PIVOTS	MANUFACTURERS STANDARD PIVOTS
	1	LOCK / LATCH SET	PULL HANDLE, PUSH BAR
	1	CLOSER	LON 4040 SERIES UNIT IN STANDARD FINISH, INTERIOR MOUNTED
	1	STOPS	RAISED FLOOR STOP
	1	SILENCERS	AS PROVIDED BY DOOR FRAME MANUFACTURER
	1	WEATHERSTRIP	MANUFACTURERS STANDARD FELT WEATHER STRIPPING
	1	DOOR SWEEP	MANUFACTURERS STANDARD DOOR SWEEP
	1	THRESHOLD	MANUFACTURERS STANDARD THRESHOLD
	1	RAIN DRIP CAP	PEMCO 346C RAIN DRIP CAP
HW-4			
RESTROOM SET	3	HINGE	4-1/2" X 4-1/2"
	1	LOCK / LATCH SET	STANDARD LOCK CORE, FUNCTION 76, SEE NOTE 12
	1	STOP	DOME FLOOR STOP
	1	SILENCER	AS PROVIDED BY DOOR FRAME MANUFACTURER
HW-5			
PASSAGE SET	3	HINGE	4-1/2" X 4-1/2"
	1	LOCK / LATCH SET	STANDARD LOCK CORE, FUNCTION 75, SEE NOTE 12
	1	STOP	DOME FLOOR STOP
	1	SILENCER	AS PROVIDED BY DOOR FRAME MANUFACTURER
HW-6			
OFFICE SET	3	HINGE	4-1/2" X 4-1/2"
	1	LOCK / LATCH SET	STANDARD LOCK CORE, FUNCTION 82, SEE NOTE 12
	1	1 STOP	DOME FLOOR STOP

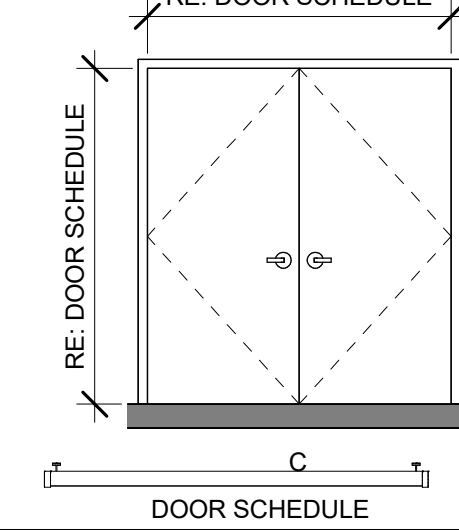
RE: DOOR SCHEDULE



RE: SCHEDULE



RE: DOOR SCHEDULE

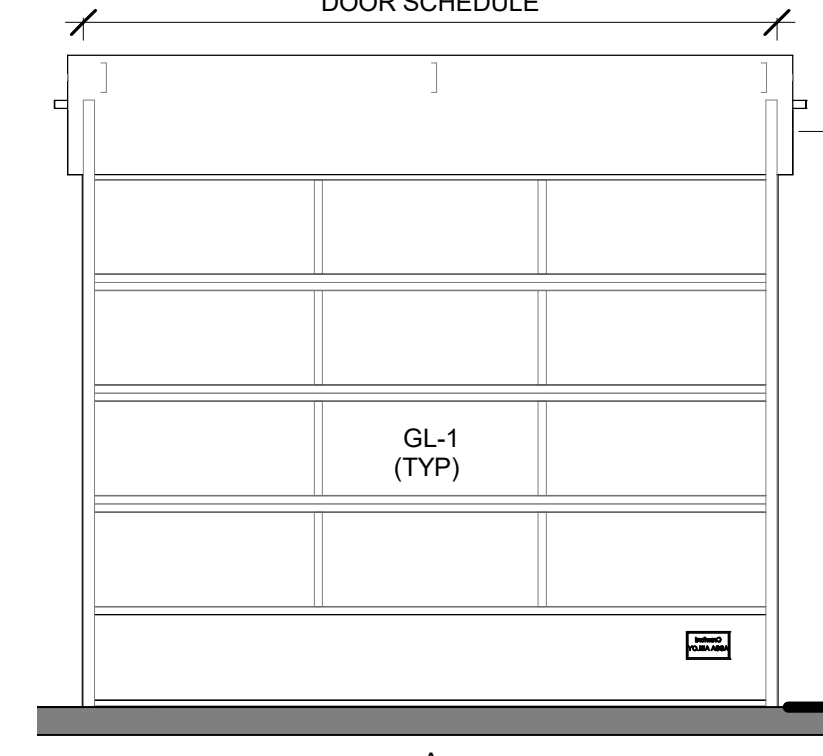


DOOR SCHEDULE



B

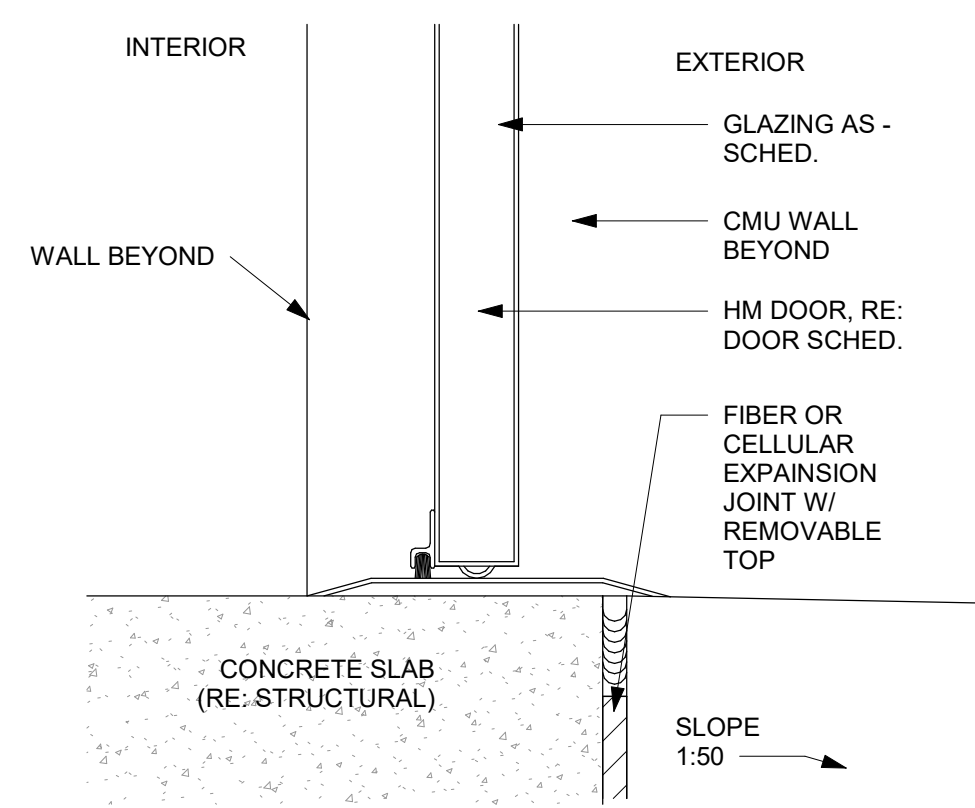
DOOR SCHEDULE



A

DOOR TYPES

1/4" = 1'-0"

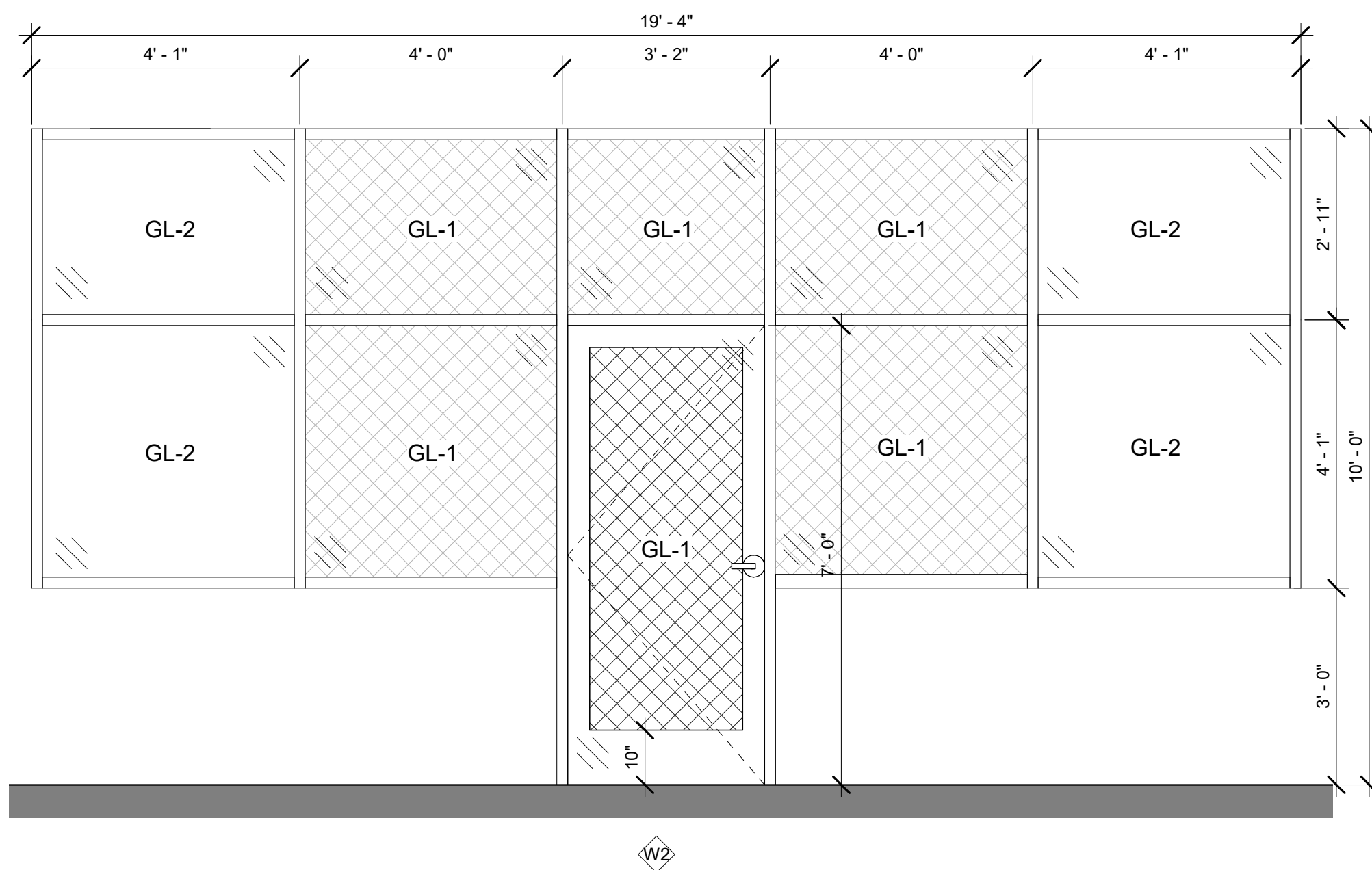
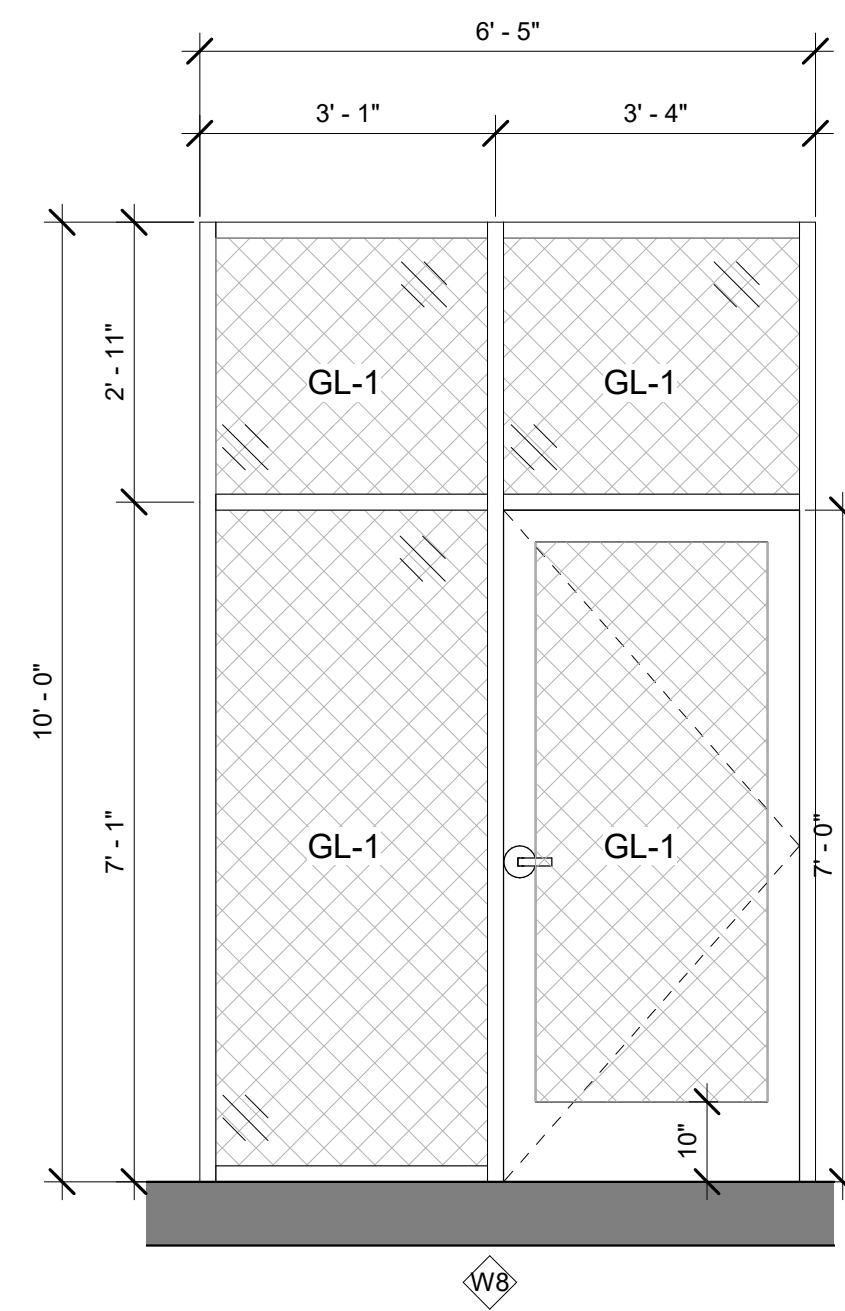


DETAIL - HM DOOR @ SILL

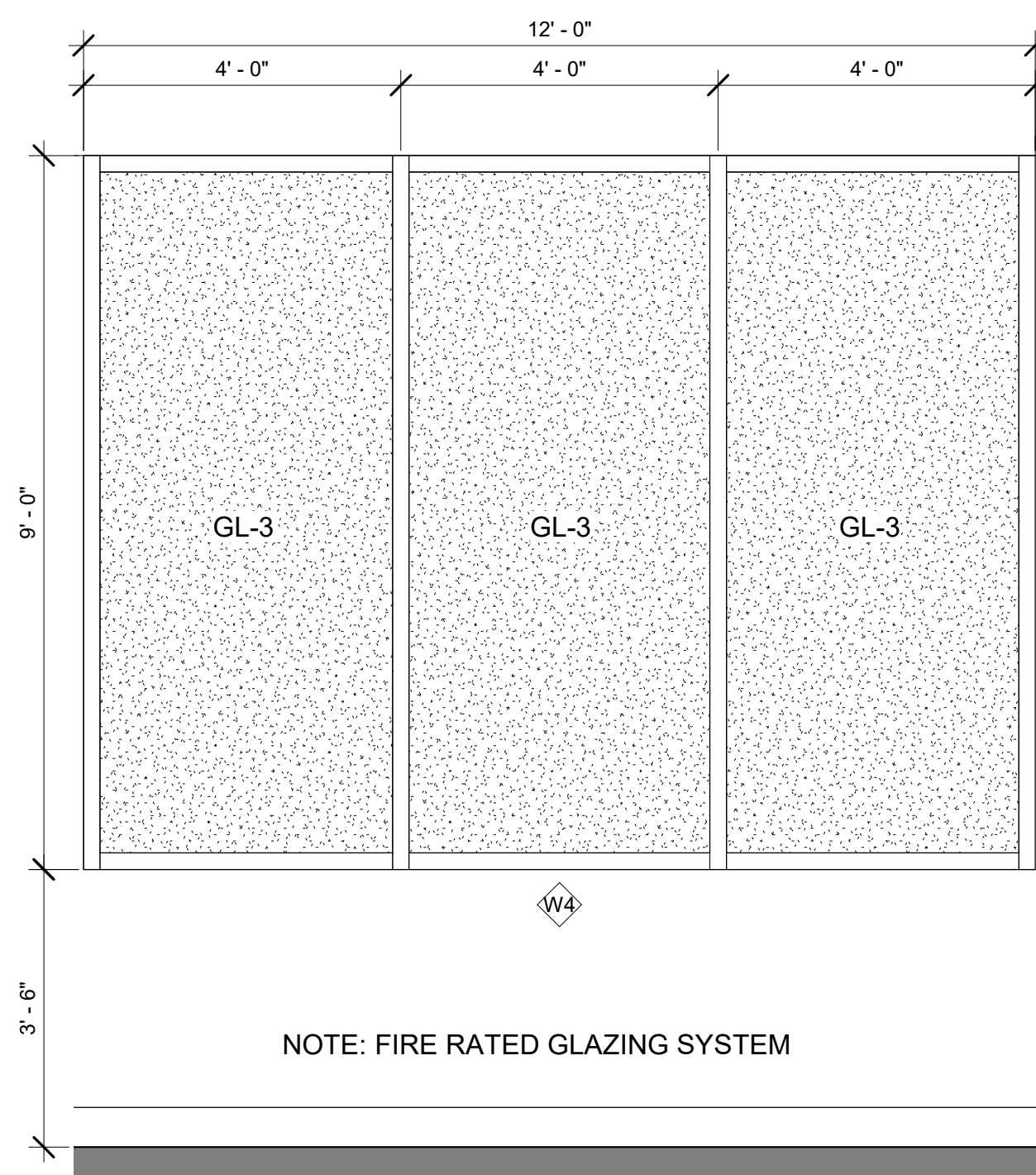
3" = 1'-0"

DOOR AND HARDWARE NOTES

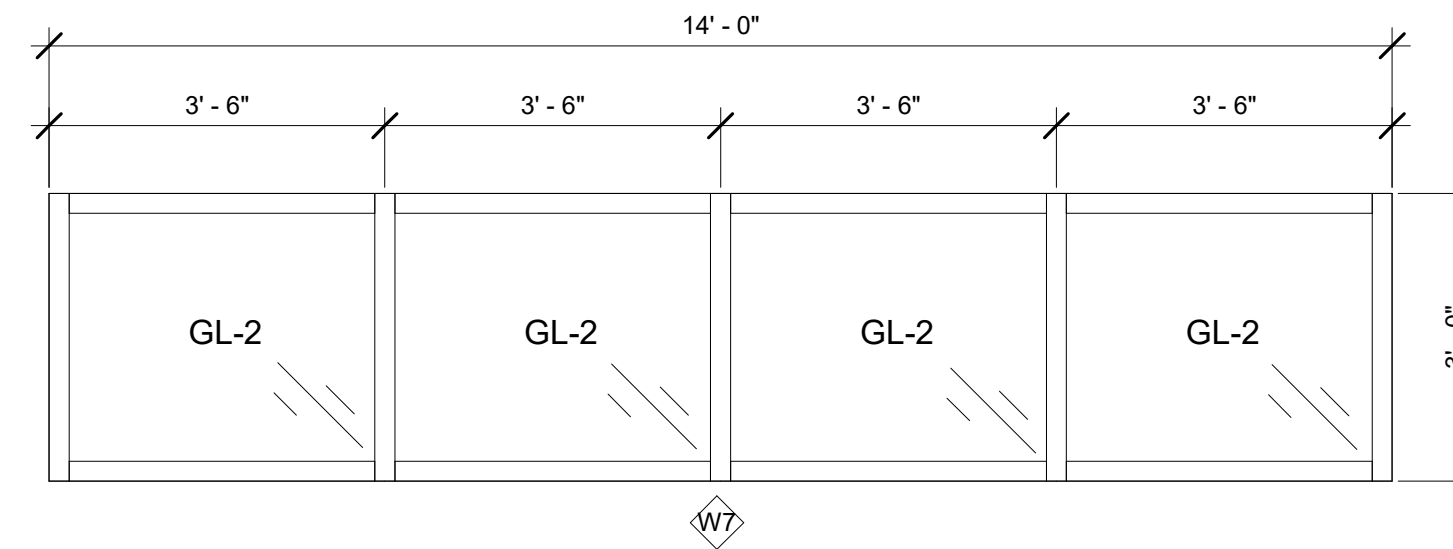
1. PROVIDE A READILY VISIBLE DURABLE SIGN ON EGRESS SIDE OR ADJACENT TO THE DOOR STATING "THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED" PER IBC, SECTION 1009.1.8.3.(#2)(2.2) - THE SIGN SHALL BE IN LETTERS 1 INCH (25MM) HIGH ON A CONTRASTING BACKGROUND. THE USE OF THE KEY-OPERATED DEVICE IS REVOCABLE BY THE BUILDING OFFICIAL FOR DUE CAUSE.
2. ALL DOORS AND HARDWARE SHALL COMPLY WITH ALL SECTIONS OF THE TEXAS ACCESSIBILITY STANDARDS, INCLUDING BUT NOT LIMITED TO, SECTIONS 4.13.9 - 4.13.10 - 4.13.11.
3. ALL EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE PER IBC, SECTION 1008.1.8.
4. ALL HOLLOW METAL DOORS: FABRICATE FRAMES AND DOORS WITH HARDWARE REINFORCEMENT PLATES WELDED IN PLACE. PROVIDE MORTISE GUARD BOXES.
5. ALL STOREFRONT DOORS - PRY RESISTANT JAMB COVER. PROVIDE DOOR GUARD, CONSTRUCTED OF 1-5/16"x4"x1/4" FULL HEIGHT, CLEAR ANODIZED ALUMINUM CHANNEL CUSTOM FITTED TO EACH STOREFRONT DOOR.
6. DOORS TO BE 1 3/4" THICK U.N.O.
7. ALL EXTERIOR HM DOORS TO BE INSULATED TO A MAX U-VALUE OF 0.61.
8. ALL EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE.
9. DOOR DETAILS ARE TYPICAL AS SHOWN ON SHEET A5.00 U.N.O. REFER TO WALL SECTION AND THEN TO DOOR DETAILS FOR HEAD AND JAMB CONDITIONS.
10. ALL RATED ELEMENTS (DOORS, FRAMED, AND GLAZING) TO HAVE APPLICABLE UL LABELS STATING COMPLIANCE, GLAZING STICKER TO REMAIN.
11. REFER TO INTERIOR DRAWINGS FOR TRIM, PAINT, STAIN, AND FINISH SPECIFICATIONS.
12. ALL FINAL KEYING WILL BE COORDINATED WITH THE OWNER'S MASTER KEY PROGRAM.
13. ALL HARDWARE WILL BE US26D FINISH, LATCH/LOCK SETS TO BE SCHLAGE D SERIES, SPARTA DESIGN, HAGAR 3500 SERIES, AUGUST LEVER OR APPROVED EQUAL TO HAGAR OR MANUFACTURERS STANDARD COMPONENTS.
14. PROVIDE SHLAGE PRIMUS LOCK CORE OR APPROVED EQUAL ON ALL EXTERIOR DOORS.
15. PROVIDE INSULATED CORE IN ALL EXTERIOR DOORS AND DOORS BETWEEN CONDITIONED AND UNCONDITIONED SPACES.
16. ALL DOOR OPENING SIZES TO BE FIELD VERIFIED BEFORE DOOR IS ORDERED.
17. THRESHOLDS, IF PROVIDED AT A DOORWAY, MUST NOT EXCEED 34 INCHES IN HEIGHT FOR EXTERIOR SLIDING DOORS, OR 1/2 INCH FOR OTHER TYPES OF DOORS. CHANGES IN LEVEL UP TO 1/4 INCH CAN BE VERTICAL AND DO NOT NEED AN EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4 INCH AND 1/2 INCH MUST HAVE A BEVELED SLOPE EQUALING 1:2. IF THE CHANGES IN LEVEL ARE GREATER THAN 1/2 INCH, THE THRESHOLD MUST BE EQUIPPED WITH A RAMP. THE FLOOR OR GROUND SURFACE WITHIN THE MANEUVERING CLEARANCES AT THE DOORWAY MUST NOT HAVE A SLOPE STEEPER THAN 1:48.



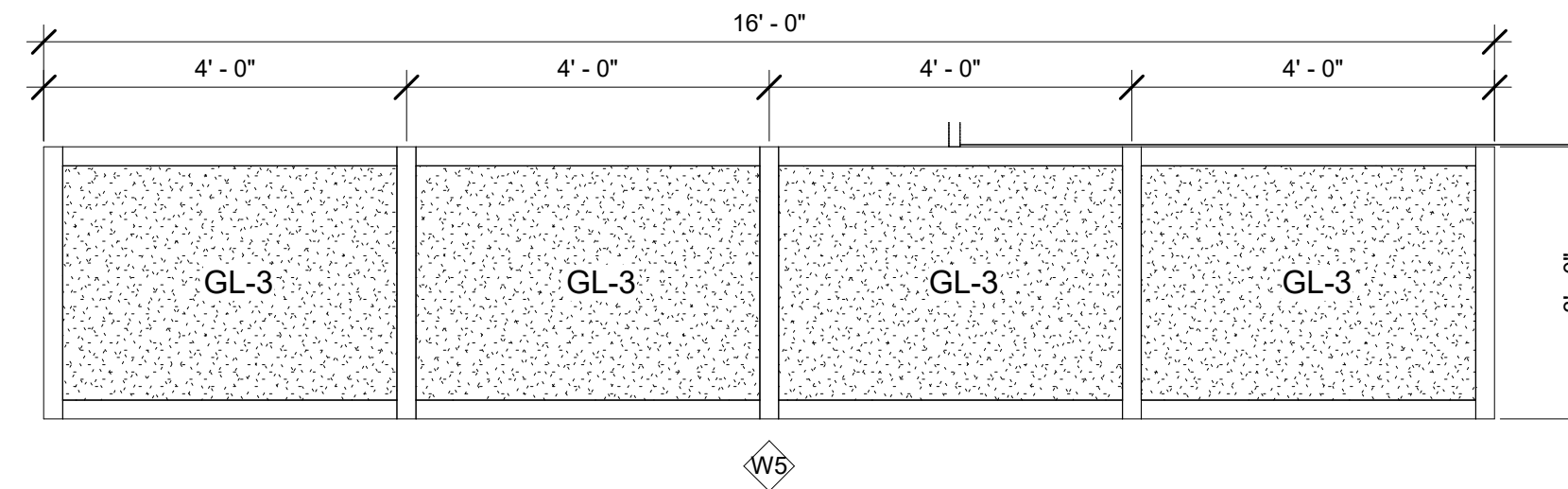
INTERIOR GLAZING ELEVATIONS 14
1/2" = 1'-0"



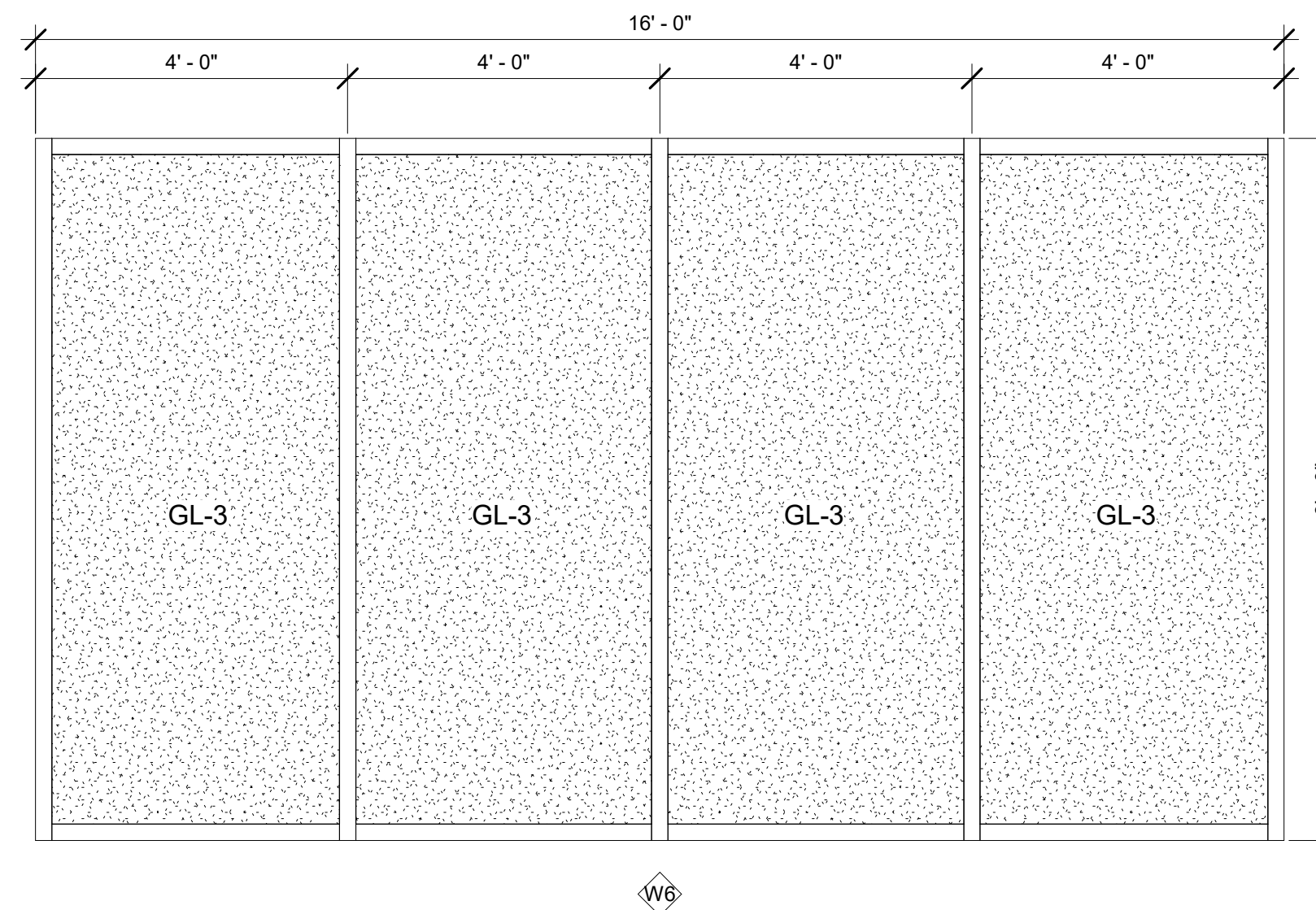
EXTERIOR GLAZING ELEVATIONS - B 7
1/2" = 1'-0"



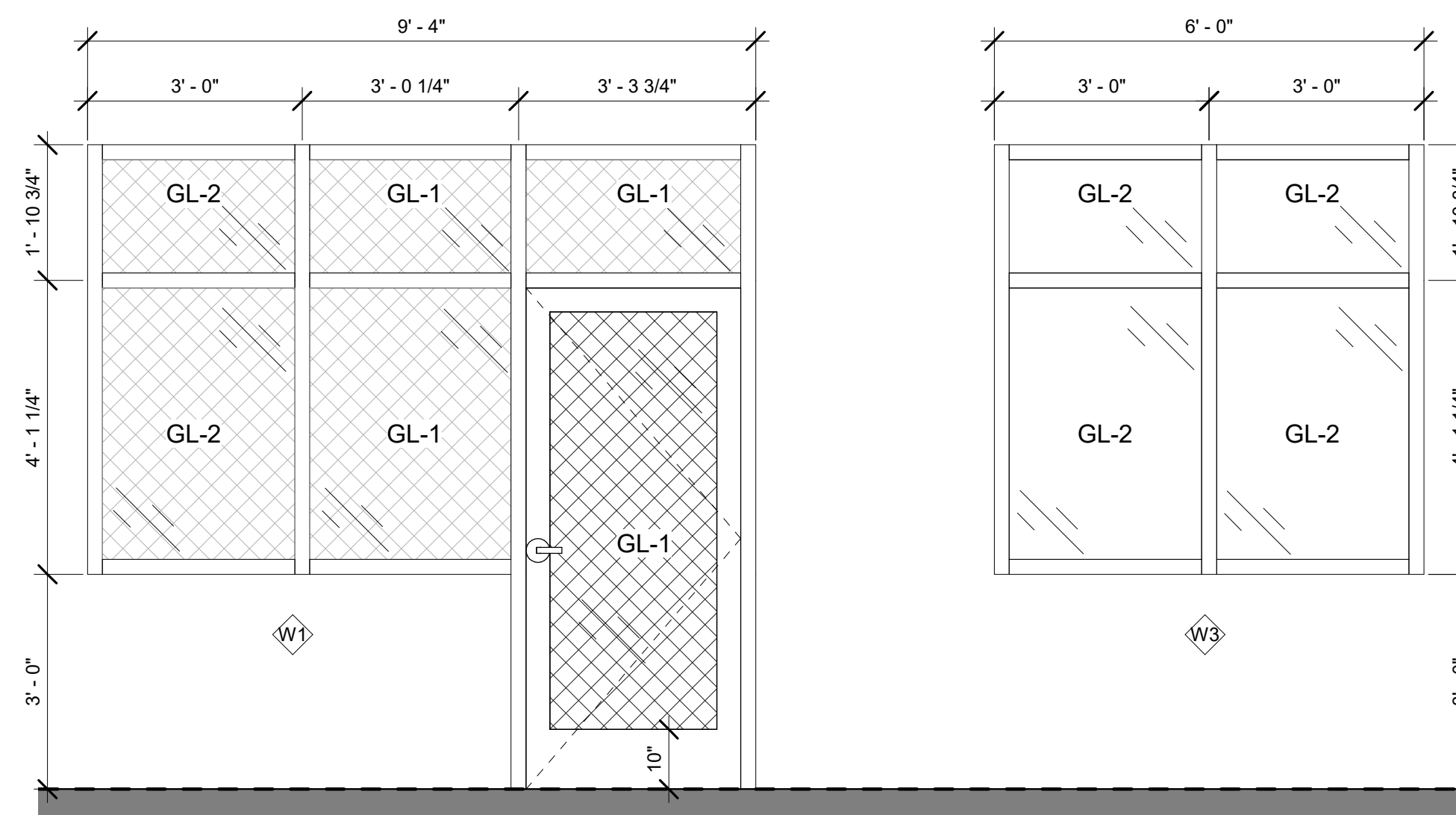
RE: ELEVATIONS FOR HEIGHT ABOVE FINISHED FLOOR



RE: ELEVATIONS FOR HEIGHT ABOVE FINISHED FLOOR
NOTE: FIRE RATED GLAZING SYSTEM



NOTE: FIRE RATED GLAZING SYSTEM



EXTERIOR GLAZING ELEVATIONS - A 5
1/2" = 1'-0"

INTERIOR GLAZING SCHEDULE					
MARK	LENGTH	HEIGHT	COUNT	FRAME	FRAME FINISH
W2	19'-4"	10'-0"	1	ALUM.	ANODIZED

INTERIOR GLAZING NOTES

- GLAZING SUBJECT TO HUMAN IMPACT LOADS AND IN ALL HAZARDOUS LOCATIONS SHALL COMPLY WITH I.B.C., SECTION 2406 (INCLUDING 2406.1, 2406.2, & 2406.3). STOREFRONT GLASS DOORS AND ADJACENT GLASS PANELS SHALL BE SAFETY/IMPACT RESISTANT GLASS.
- DOOR FRAME TO HAVE INTEGRAL STOP AND SEAL AT JAMBS AND HEAD
- GLAZING VENDOR TO FIELD VERIFY ALL MEASUREMENTS AND PROVIDE SHOP DRAWINGS FOR ARCHITECT REVIEW PRIOR TO FABRICATION
- DIMENSIONS SHOWN ARE NOMINAL AND DO NOT SHOW REQUIRED GAPS TO MASONRY. PROVIDE SYSTEM THAT FITS WITH COURSED MASONRY, VERIFY ALL OPENINGS PRIOR TO SHOP DRAWINGS AND FABRICATION.
- ALL GLAZING IN CONDITIONED SPACED TO COMPLY WITH IECC STANDARDS FOR CLIMATE ZONE. REFER TO COMCHECK FOR U-FACTOR AND SHGC. SHGC RATING NOT REQUIRED ON WINDOWS INTO TUNNEL.

EXTERIOR GLAZING SCHEDULE					
MARK	LENGTH	HEIGHT	COUNT	FRAME	FRAME FINISH
W1	9'-4"	9'-0"	1	ALUM.	BLACK ANODIZED
W3	6'-0"	6'-0"	2	ALUM.	BLACK ANODIZED
W4	12'-0"	9'-0"	6	ALUM.	BLACK ANODIZED
W5	16'-0"	3'-0"	2	ALUM.	BLACK ANODIZED
W6	16'-0"	9'-0"	1	ALUM.	BLACK ANODIZED
W7	14'-0"	3'-0"	2	ALUM.	BLACK ANODIZED
W8	6'-5"	10'-0"	1	ALUM.	BLACK ANODIZED

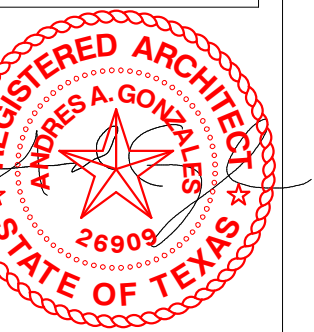
EXTERIOR GLAZING NOTES

- SEALANT JOINT WIDTH AROUND WINDOWS TO BE 1/2", MIN. OF 1/4" AT SILL.
- ALL EXTERIOR GLAZING TO BE 1" THICK INSULATED, TEMPERED GREY TINTED, LOW-E - SYSTEM TO BE DESIGNED FOR IBC - RE: STRUCTURAL FOR EXACT WIND LOAD REQUIREMENTS.
- GLAZING SYSTEM TO BE BLACK ANODIZED ALUMINUM STOREFRONT SYSTEM, UNLESS NOTED OTHERWISE. FIRE RATED GLAZING SYSTEMS SHALL BE COMPLIANT AND TESTED PER ASTM E119.
- GLAZING VENDOR TO FIELD VERIFY ALL MEASUREMENTS AND PROVIDE SHOP DRAWINGS FOR ARCHITECT REVIEW PRIOR TO FABRICATION.
- GLAZING TO MEET ENERGY REQUIREMENTS FOR CLIMATE ZONE 2. U-VALUE FACTOR: CURTAIN WALL/STOREFRONT - .70, ENTRANCE DOOR - 1.10, SHGC FACTOR: .25
- IBC - 2406.3 GLAZING IN HAZARDOUS LOCATIONS: THE FOLLOWING SHALL BE CONSIDERED SPECIFIC HAZARDOUS LOCATIONS REQUIRING TEMPERED GLAZING MATERIALS.
 - GLAZING IN SWINGING DOORS.
 - GLAZING IN AN INDIVIDUAL FIXED PANEL ADJACENT TO A DOOR WHERE THE NEAREST EXPOSED EDGE OF THE GLAZING IS WITHIN A 24-INCH ARC OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EDGE IS LESS THAN 60-INCHES ABOVE THE WALKING SURFACE.
- INSTALL W6 STORE FRONT FRAME WITH EXTERIOR FACING INWARD AT TUNNEL LOCATION, TYPICAL. (WEEPS INTO TUNNEL).
- 1" DOUBLE GLAZED INSULATED, CLEAR GLAZING, NO FILM OR TINT ON W2 ALUMINUM STORE FRONT.
- 1" DOUBLE GLAZED INSULATED GUARDIAN GLASS SNR 43 ON CLEAR AT W1, W3, AND W4 WINDOWS.
- INSTALL TUNNEL STORE FRONT FRAME WITH EXTERIOR FACING INWARD AT TUNNEL LOCATION, TYPICAL. (WEEPS INTO TUNNEL).

GLAZING LEGEND

	GL-1 TEMPERED GLAZING MATERIAL
	GL-2 INSULATED LOW-E CLEAR
	GL-3 FIRE RATED GLAZING

1/09/2022 ISSUED FOR PERMIT



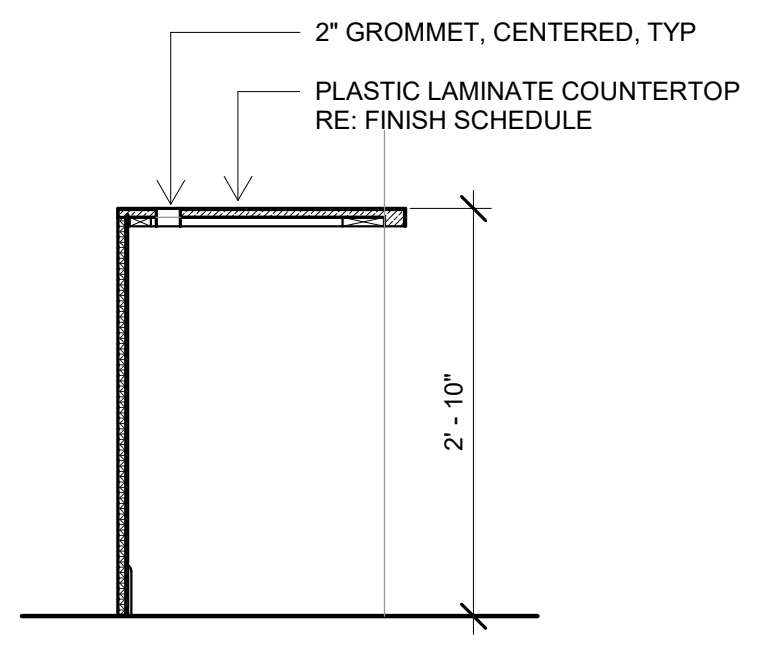
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SUDS DELUXE CAR WASH
SAN MARCOS

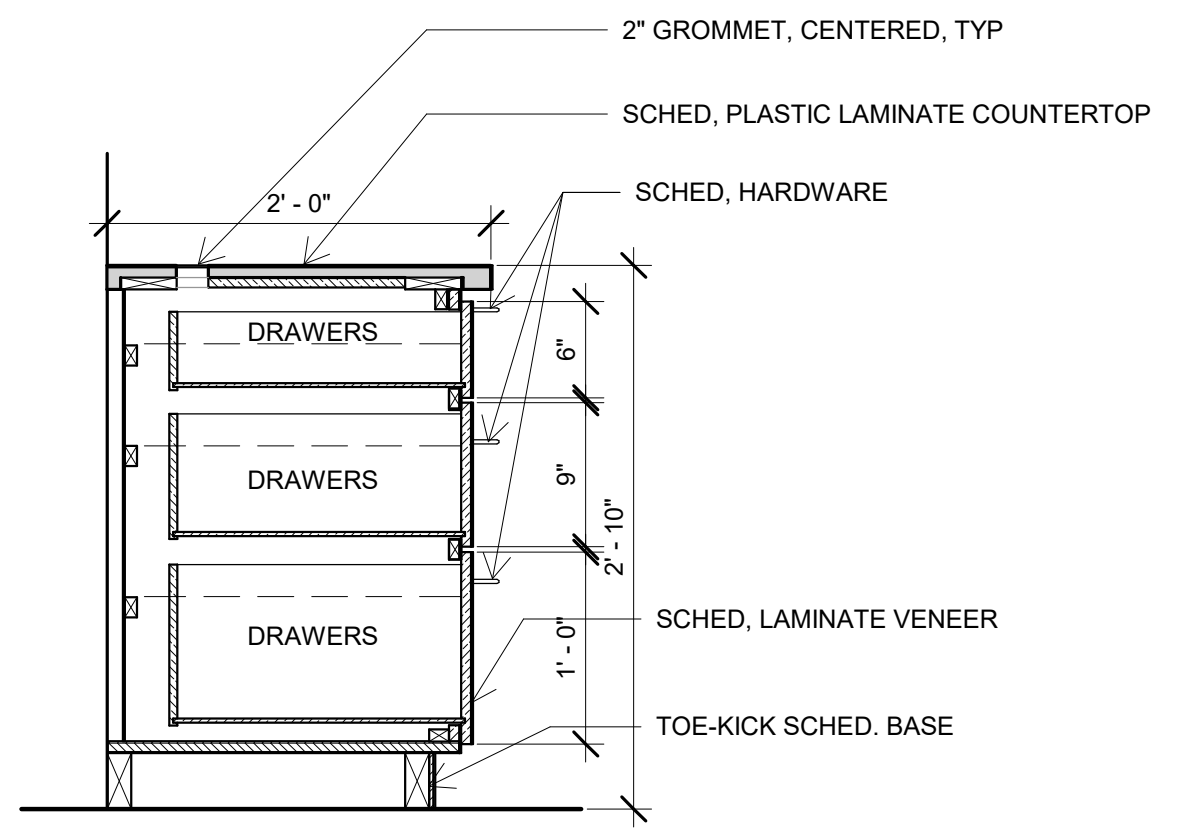
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M22-02-B0035

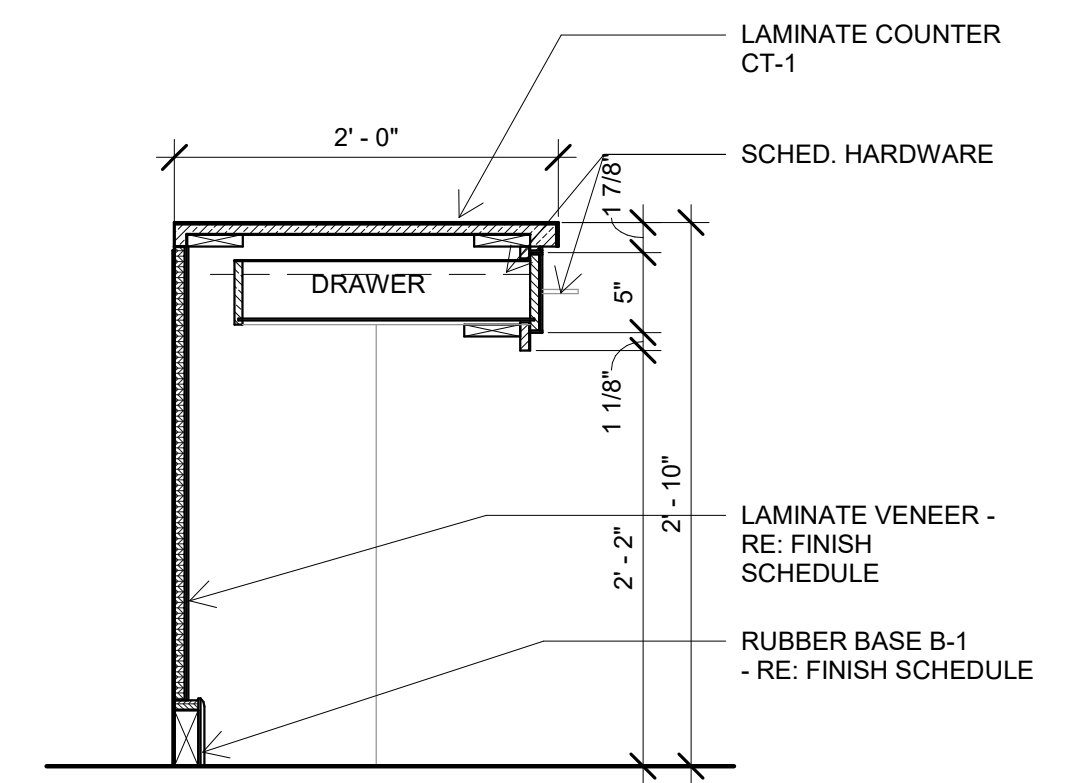
SHEET:
A7.10
INTERIOR AND
EXTERIOR
GLAZING



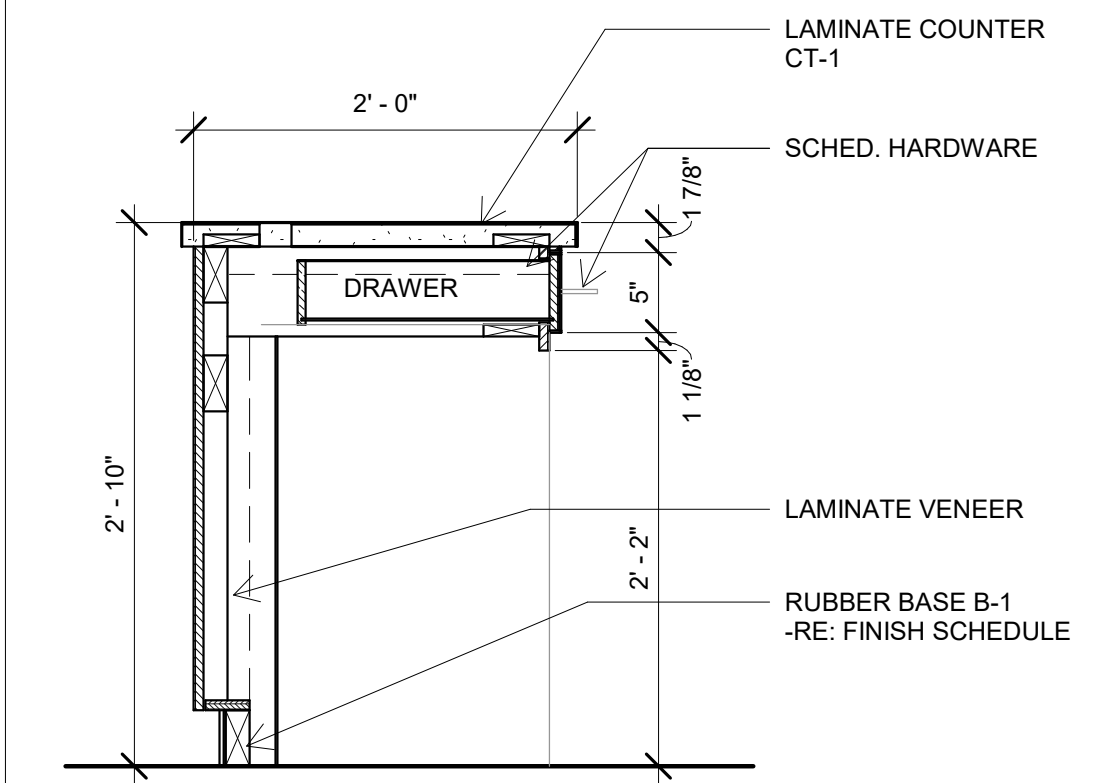
MILLWORK - OFFICE COUNTERTOP
3/4" = 1'-0" **20**



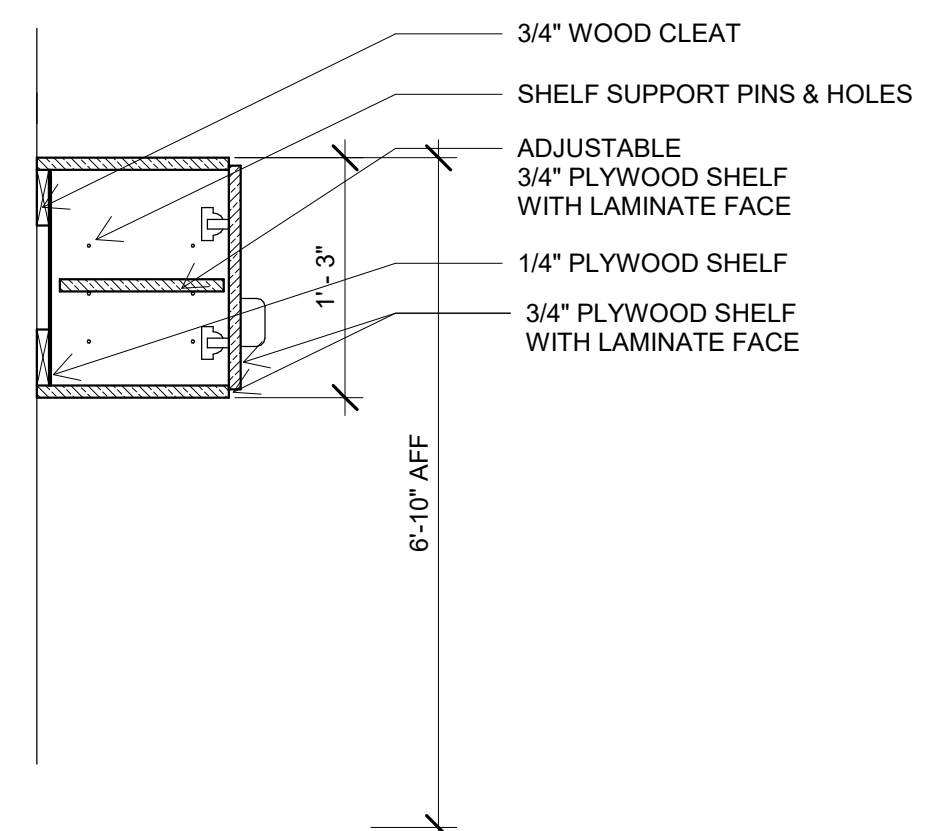
MILLWORK - BASE 3-DRAWER
1" = 1'-0" **16**



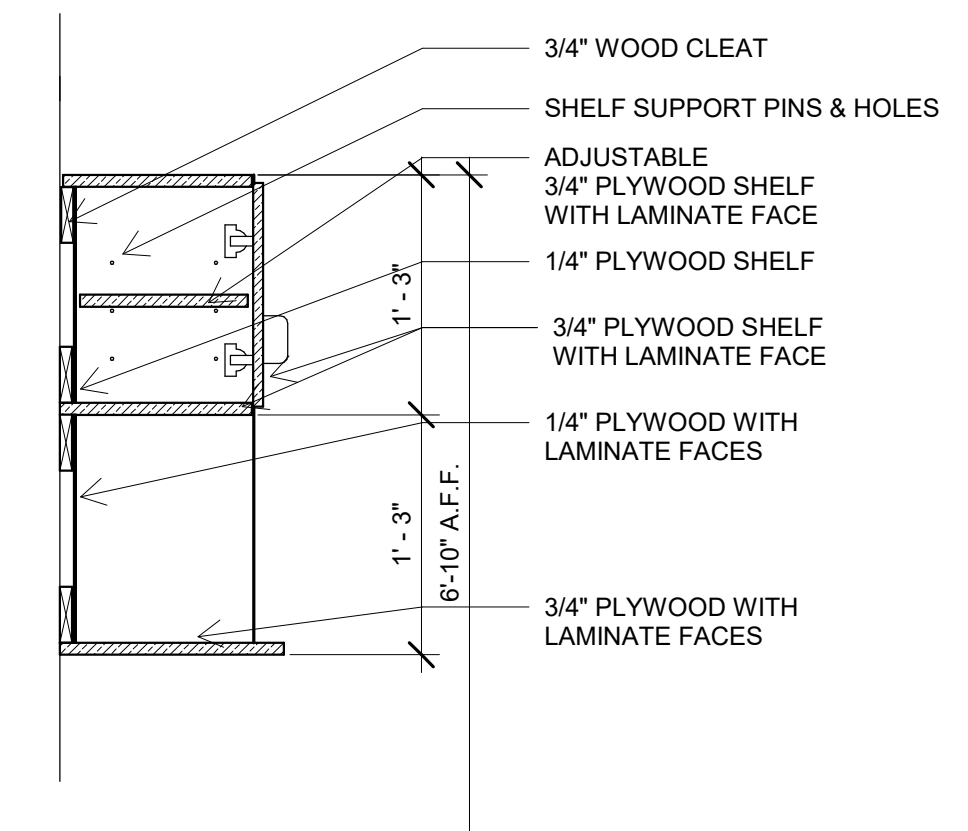
MILLWORK - COUNTER W/ DRAWER
1" = 1'-0" **12**



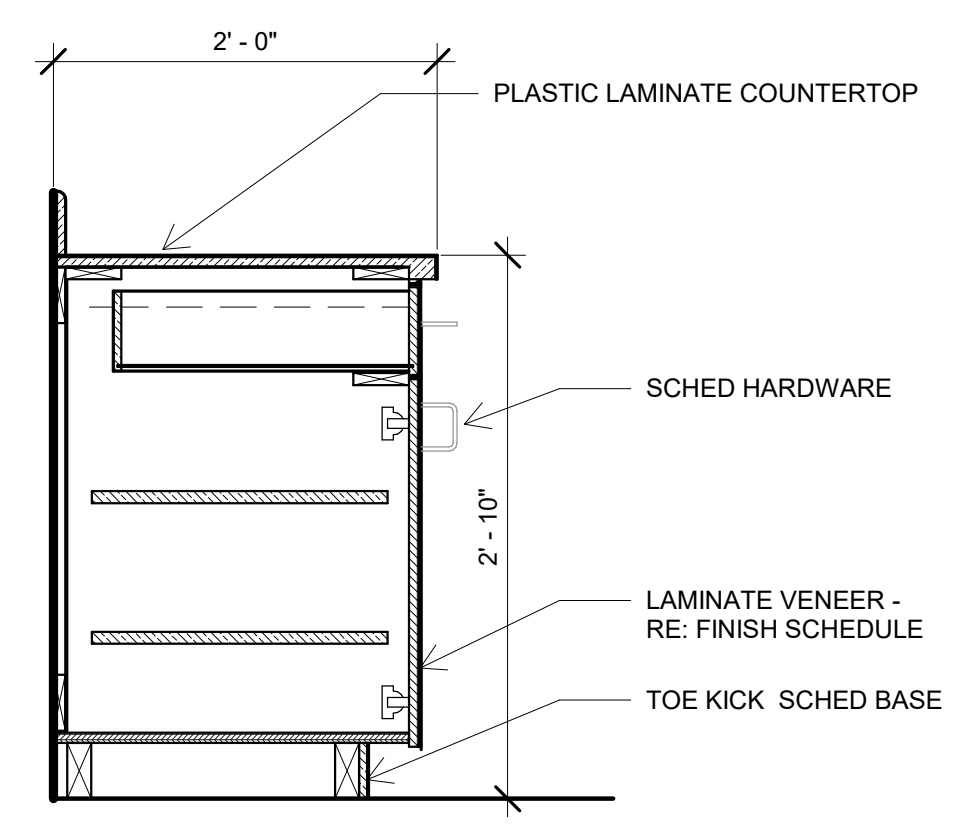
MILLWORK - TRANSACTION COUNTER
1" = 1'-0" **8**



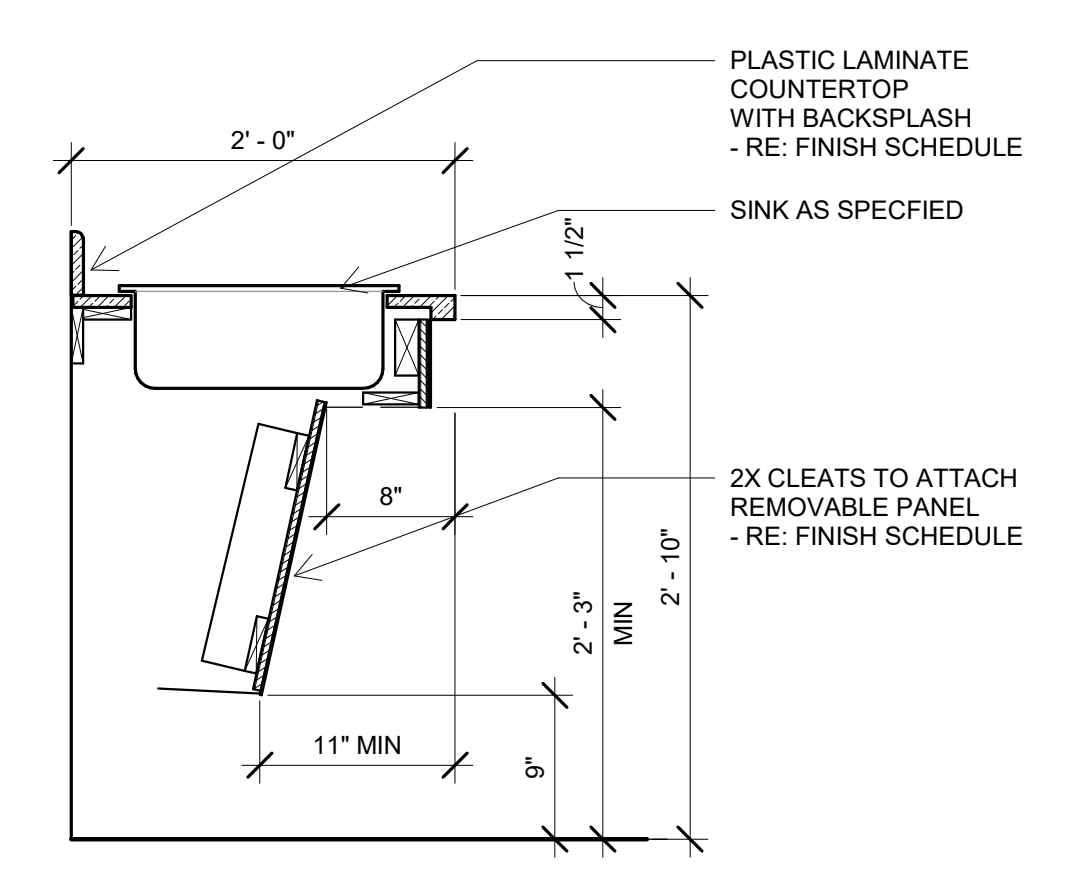
UPPER CABINET SECTION
1" = 1'-0" **15**



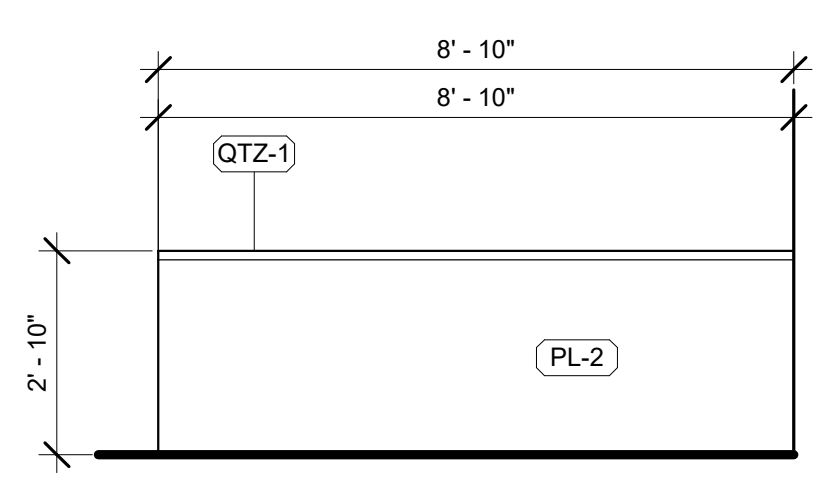
UPPER CABINET SECTION
1" = 1'-0" **11**



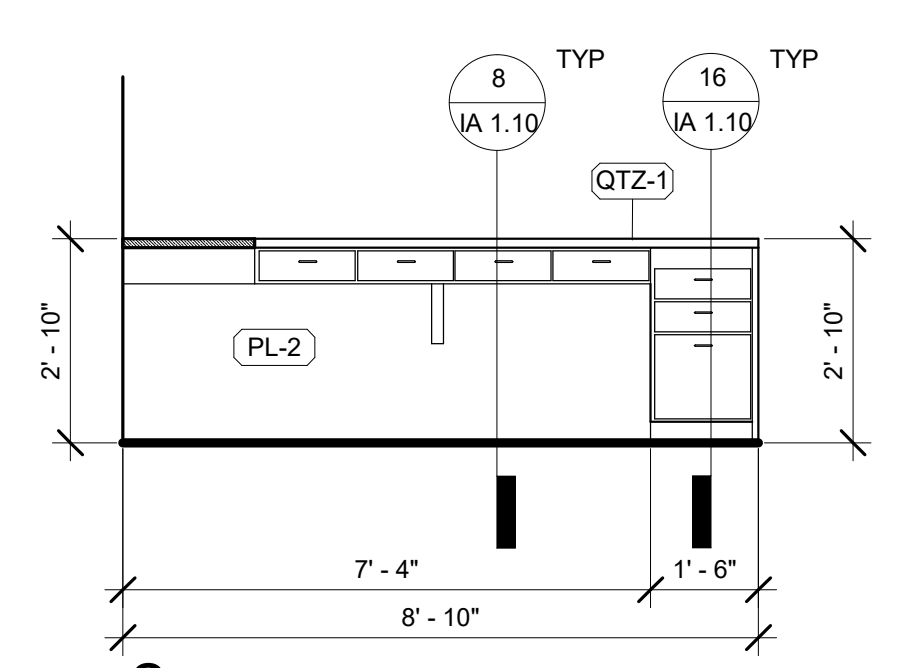
LOWER CABINET SECTION
1" = 1'-0" **14**



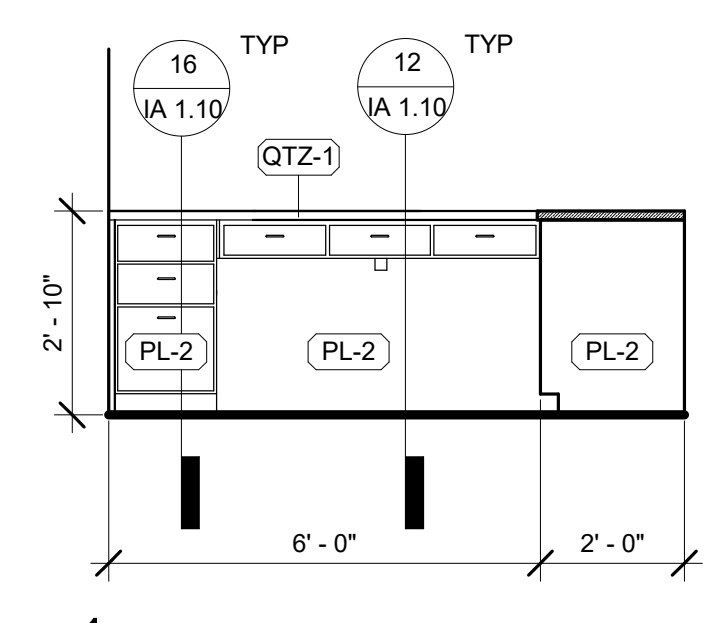
SINK VESTIBULE SECTION
1" = 1'-0" **10**



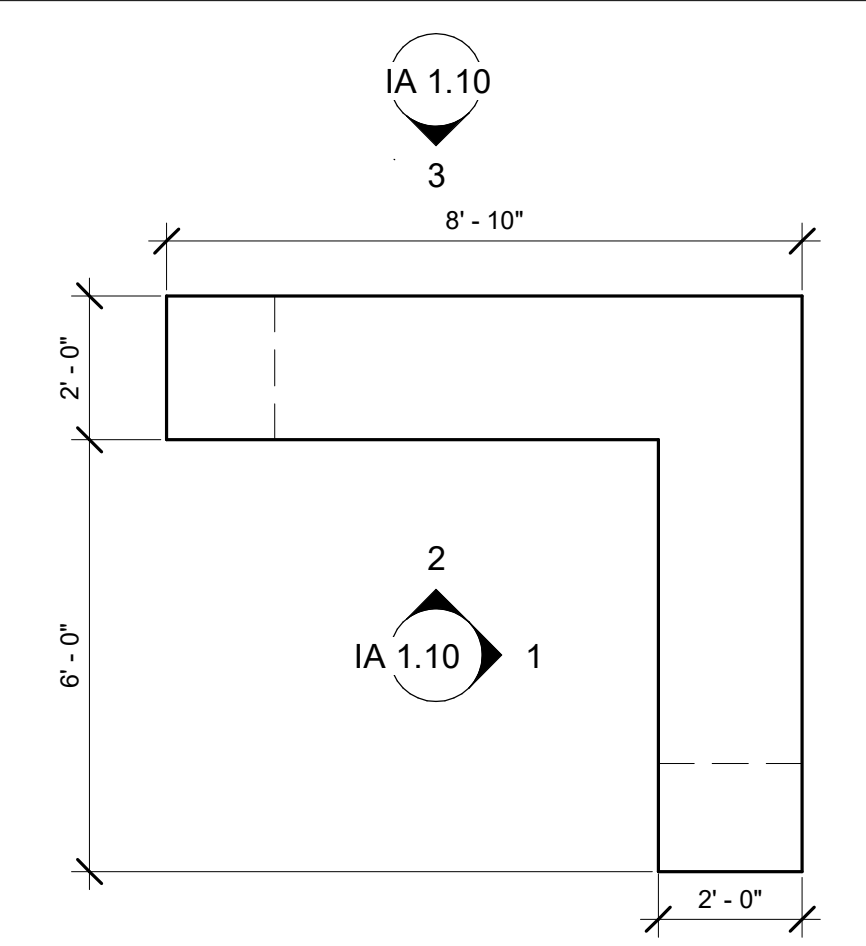
DESK ELEVATION 4
3/8" = 1'-0" **17**



DESK ELEVATION 3
3/8" = 1'-0" **13**



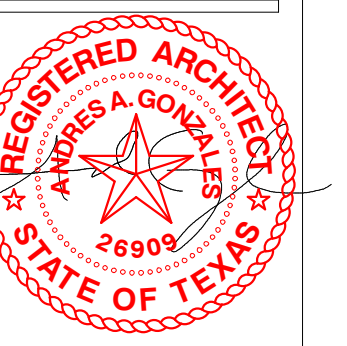
DESK ELEVATION 2
3/8" = 1'-0" **9**



LOBBY DESK
3/8" = 1'-0" **5**

MILLWORK NOTES

- UNLESS NOTED OTHERWISE, ALL CABINET CONSTRUCTION SHALL BE PLASTIC LAMINATE CLAD, AND SHALL MEET THE REQUIREMENTS OF AWI SECTION 400, CUSTOM GRADE, FLUSH OVERLAY CONSTRUCTION. COUNTERTOPS SHALL MEET THE REQUIREMENTS OF AWI SECTION 400 WITH EDGE DETAILS AS INDICATED ON THE DRAWINGS.
- PROVIDE SHOP DRAWINGS FOR ALL MILLWORK FOR REVIEW PRIOR TO BEGINNING FABRICATION OF ANY MILLWORK ITEMS.
- ALL OPEN SHELVING SHALL CONFORM TO AWI SECTION 400B CUSTOM GRADE. UNLESS NOTED OTHERWISE, ALL SHELVES SHALL HAVE PLASTIC LAMINATE FINISH. SHELVING STANDARDS SHALL BE EQUAL TO KY NO 82 AND BRACKETS SHALL BE EQUAL TO KY NO 182, UNLESS MORE STRINGENT REQUIREMENTS ARE NOTED. PROVIDE PROPER FIRE-RETARDANT BLOCKING WITHIN PARTITIONS ON WHICH SHELVING IS INSTALLED.
- PROVIDE EXTERIOR-GRADE OR WATER-RESISTANT SUBSTRATE TOE COUNTERS AND KICKS AT SINKS AND LAVATORIES.
- CABINET BODY AND DOOR CONSTRUCTION TO BE PLYWOOD OR MDF, PARTICLE BOARD IS NOT PERMITTED.
- INTERIOR CONSTRUCTION TO BE MELAMINE ON MDF. PARTICLE BOARD IS NOT PERMITTED.
- UNDERSIDE OF OVERHEAD CABINETS TO MATCH CABINET FINISH.
- UNLESS INDICATED OTHERWISE, BASE CABINETS ARE 1'-11" DEEP WITH 2'-0" DEEP COUNTERTOP; UPPER CABINETS ARE 1'-0" INSIDE CLEAR.
- UNLESS NOTED OTHERWISE, HARDWARE MINIMUM REQUIREMENTS ARE AS FOLLOWS:
ANSI/BHMA A156.9 CABINET HARDWARE STANDARDS
A. CABINET HARDWARE: ANSI A156.9.
B. POCKET DOOR/DRAWER PULLS: B02011.
C. ACCURIDE DRAWER SLIDES: B05051 FOR DRAWERS OVER 6 INCHES DEEP, B05052 FOR DRAWERS 3 TO 6 INCHES DEEP, AND B05053 FOR DRAWERS LESS THAN 3 INCHES DEEP.
D. SLIDING DOOR TRACKS: B07063.
E. SLIDING DOOR: E07162.
F. HAFELE CONCEALED HINGES: B1601, MINIMUM 110 DEGREE OPENING.
G. BUTT HINGES: B01361, FOR FLUSH DOORS, B01361 FOR INSET LIPPED DOORS, AND B01521 FIVE-KNUCKLE FOR OVERLAY DOORS.
H. MAGNETIC CABINET DOOR CATCH: B0371 OR B03172.
I. CABINET LOCKS: ANSI A156.11.
J. DRAWERS AND HINGED DOOR: E07262.
K. STEEL CHANNEL FRAME AND LEG SUPPORTS FOR COUNTER TOP.
L. PIPE SUPPORTS: PIPE: ASTM A53.



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SUDS DELUXE CAR WASH
SAN MARCOS
IH, SS & CHISOS
SAN MARCOS, TEXAS 78666

PM: Checker DE: Author
PROJECT:
M22-02-B0035
SHEET:
IA 1.10
MILLWORK ELEV & DETAILS

EXTERIOR FINISH SCHEDULE					
SYMBOL	DESCRIPTION	MANUFACTURER	DESCRIPTION	COLOR	REMARKS
CMU-1	CMU	CAPITOL BLOCK	INTEGRAL COLOR SPLIT FACE CMU	ARCTIC WHITE	MORTAR: SPECMIX 750 SILVERSTONE
CMU-2	CMU	CAPITOL BLOCK	INTEGRAL COLOR SPLIT FACE CMU	PAINT PASSIVE GRAY SW	MORTAR: SPECMIX 750 SILVERSTONE
CS-1	CAST STONE	-	TO MATCH CMU-1	-	-
EP-1	PAINT (EXTERIOR)	BENJAMIN MOORE	-	HEARTHSTONE 1601	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-2	PAINT (EXTERIOR)	BENJAMIN MOORE	-	CHARCOAL SLATE HC-178	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-3	PAINT (EXTERIOR)	-	CUSTOM GREEN SW COLOR (SPECS PROVIDED BY OWNER)	-	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-4	PAINT (EXTERIOR)	-	CUSTOM YELLOW SW COLOR (SPECS PROVIDED BY OWNER)	-	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
EP-5	PAINT (EXTERIOR)	SHERWIN WILLIAMS	-	SW 7005 PURE WHITE	GC MUST PROVIDE SAMPLE TO OWNER FOR APPROVAL
MTL-1	METAL	-	GALVANIZED BREAK METAL	PAINT RE: ELEVATION	-
MTL-2	METAL	-	PAC CLASD HWP PANEL	GRAHITE, 24 GA	-
MTL-4	METAL	-	PREFINISHED METAL COPING	PAINT EP-4	-
MTL-5	METAL	-	PREFINISHED METAL GUTTER AND DOWNSPOUTS	COLOR TO MATCH WETHERED ZINC, 24 GA	MATCH EP-2
MTL-6	METAL	MBCI	GALVALUME, SIGNATURE 200	COLOR TO MATCH WETHERED ZINC, 24 GA	-
STC-1	SUCCO	-	STUCCO	MATCH EP-5	-

INTERIOR FINISH SCHEDULE				
SYMBOL	MATERIAL TYPE	MANUFACTURER	DESCRIPTION	COLOR
ACT-1	CEILING	ARMSTRONG	2X2 ACOUSTICAL TILE	WHITE GRID
B-1	FLOOR BASE	JOHNSONITE 38 PEWTER	4" RUBBER BASE	-
EXT-1	WALL PANELS	EXTRUTECH OR NU-FORM PANELS OR APPROVED EQUAL	TUNNEL - CLEAN AND SEALED WITH L&M SEAL HARD, THEN L&M PETROTEX	BLACK
GT-1	GROUT	LATICRETE PERMACOLOR SELECT	89 SMOKE GRAY (WALLS)	-
GYP-1	CEILING	-	GYP SUM CEILING	-
P-1	PAINT	BENJAMIN MOORE	SEMI GLOSS	2134-70 GENESIS WHITE (WALLS)
P-2	PAINT	BENJAMIN MOORE	SEMI GLOSS	2134-30 IRON MOUNTAIN
PC-1	PORCELAIN TILE	VALLEY RIDGE	LUMBER GRAY WOOD PLANK	-
PL-1	PLASTIC LAMINATE	WILSONART	DOORS	WASHI CRYSTAL
PL-2	PLASTIC LAMINATE	WILSONART	SAFE COUNTER	PEWTER BRUSH
PL-3	PLASTIC LAMINATE	WILSONART	KITCHEN COUNTER	ORGANIC COTTON
PL-4	PLASTIC LAMINATE	WILSONART	CORE WHITE 4X12	-
PT-1	PORCELAIN TILE	ARIZONA TILE	CORE WHITE 4X12	-
PT-2	PORCELAIN TILE	ARIZONA TILE	COLOR WAVE ORANGE RUSSET 2X12	-
PT-2	PORCELAIN TILE	DALTILE	2X12	CORE WHITE
PT-3	PORCELAIN TILE	DALTILE	COLOR WAVE WHISPER GREEN 1X6	ORANGE RUSSET
PT-4	PORCELAIN TILE	DALTILE	COLOR WAVE, 1X6	WHISPER GREEN
QTZ-1	QUARTZ COUNTERTOP	WILSONART	QUARTZ LORRAINE	WHITE
RB-1	FLOOR BASE	JOHNSONITE	4" RUBBER BASE, 38 PEWTER	-
SC-1	SEALED CONCRETE	L&M	CLEANED AND SEALED WITH L&M SEAL HARD, THEM L&M PETROTEX	-
SD-1	WINDOW SILLS	CORAN	NATURAL GRAY	-
SD-2	WINDOW SILLS	-	PVC SILL	-
TR-1	TRIM	SCHLUTER SCHIENE	ALUMINUM, SATIN STAINLESS	-
XP-1	PAINT	SHERWIN WILLIAMS	EPOXY GLOSS	B73W00311

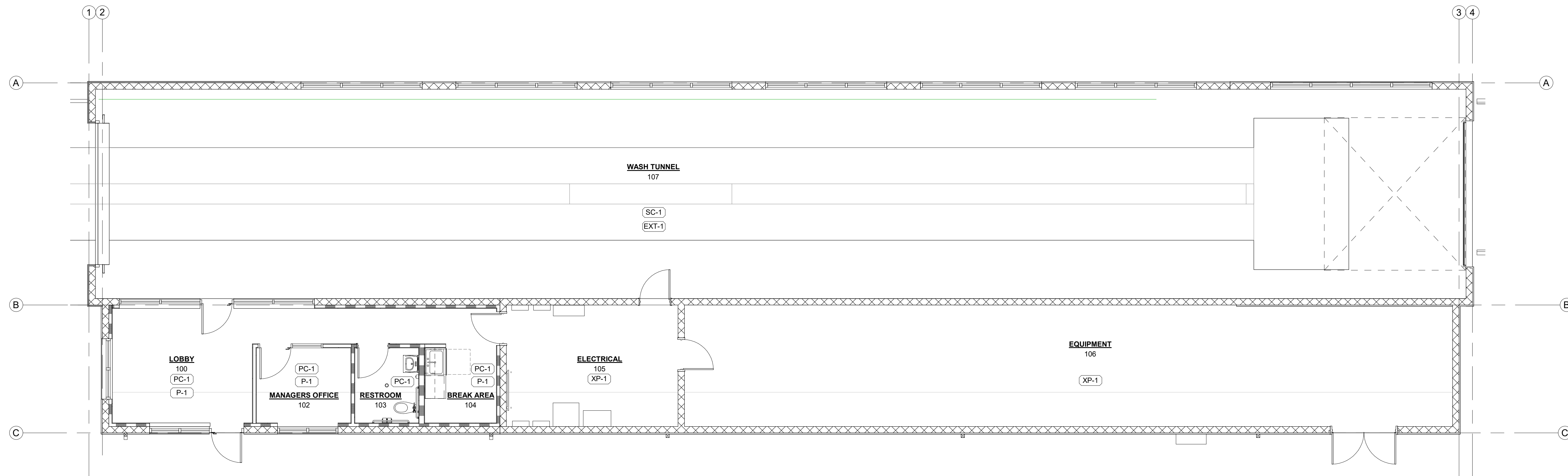
ROOM FINISH SCHEDULE

RM. NO.	SPACE	FINISHES				AREA
		BASE	FLOOR	WALL	CEILING	
100	LOBBY	B-1	PC-1	P-1	ACT-1	248.38 SF
101	CORRIDOR	B-1	PC-1	P-1	ACT-1	83.07 SF
102	MANAGERS OFFICE	B-1	PC-1	P-1	ACT-1	71.52 SF
103	RESTROOM	-	PC-1	SEE ELEVATIONS	GYP-1	46.88 SF
104	BREAK AREA	B-1	PC-1	P-1	ACT-1	49.02 SF
105	ELECTRICAL	NONE	SC-1	XP-1	NONE	204.53 SF
106	EQUIPMENT	NONE	SC-1	XP-1	NONE	912.45 SF
107	WASH TUNNEL	NONE	SC-1	EXT-1	NONE	2813.55 SF

FINISH NOTES

1. ANY MATERIAL ALLOWANCES LISTED DO NOT INCLUDE SHIPPING, TAX, ADHESIVE OR LABOR - PRICING IS FOR MATERIAL ONLY.
2. NO MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVED BY ARCHITECT PRIOR TO PURCHASE AND INSTALLATION.
3. ALL INTERIOR FINISH MATERIALS MUST COMPLY WITH IBC SECTION 803 THROUGH 805, SECTION 803.5, AND TABLE 803.5.
4. INTERIOR WALL AND CEILING FINISH MATERIALS SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E 84 OR UL 723. SUCH INTERIOR FINISH MATERIALS SHALL BE GROUPED IN THE FOLLOWING CLASSES IN ACCORDANCE WITH THEIR FLAME SPREAD AND SMOKE DEVELOPED INDEXES.

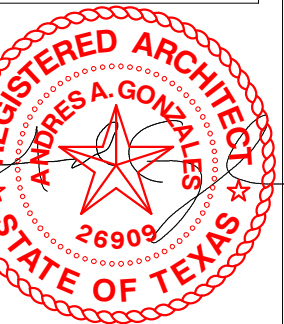
CLASS A: FLAME SPREAD INDEX 0-25; SMOKE-DEVELOPED INDEX 0-450
 CLASS B: FLAME SPREAD INDEX 26-75; SMOKE-DEVELOPED INDEX 0-450
 CLASS C: FLAME SPREAD INDEX 76-200; SMOKE-DEVELOPED INDEX 0-450



ENLARGED AREA PLAN

3/16" = 1'-0"

1/09/2022 ISSUED FOR PERMIT



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SUDS DELUXE CAR WASH
 SAN MARCOS

IN: 35 & CHISOS
 SAN MARCOS, TEXAS 78666

PM: AG DE: DS

PROJECT:
 M22-02-B0035

SHEET:
IA 2.00
 INTERIOR FINISH PLAN

DESIGN CRITERIA

- THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS FROM THE AUTHORITY HAVING JURISDICTION.
 - BUILDING CODE VERSION: **2015 INTERNATIONAL BUILDING CODE W. LOCAL AMENDMENTS**
 - AUTHORITY HAVING JURISDICTION: **CITY OF SAN MARCOS**
 - RISK CATEGORY: **II**
- DEAD LOADS:
 - DEAD LOADS ARE BASED UPON THE ACTUAL WEIGHTS OF MATERIALS OF CONSTRUCTION AND FIXED SERVICE EQUIPMENT. ASSUMPTIONS FOR WALL AND ROOF ASSEMBLIES ARE SHOWN BELOW:
 - MEAN PANELS - 3/8"
 - CURTAIN WALLS - 10 PSF
 - STONE / BRICK VENEER - 40 PSF
 - ADHESIVE STONE/BRICK - 10 PSF
 - SINGLE-FIT MEMBRANE ROOF INSULATION ASSEMBLY - 10 PSF
 - EQUIPMENT
 - ASSUMED LOADS FOR KNOWN EQUIPMENT ARE INDICATED ON THE STRUCTURAL DRAWINGS. ANY CHANGES IN THE TYPE, SIZE, LOCATION OR WEIGHT OF EQUIPMENT SHALL BE REPORTED TO THE ARCHITECT FOR VERIFICATION OF THE ADEQUACY OF SUPPORTING MEMBERS PRIOR TO THE SUBMISSION OF SHOP DRAWINGS.
 - ASSUMED EQUIPMENT WEIGHTS INCLUDE THE WEIGHT OF CONCRETE PADS OR CURBS (IF APPLICABLE)
 - FOR EQUIPMENT NOT INDICATED ON THE STRUCTURAL DRAWINGS WHICH THE WEIGHT OF THE EQUIPMENTS DIVIDED BY ITS SURFACE AREA EXCEEDS THE INDICATED LIVE LOAD FOR THE LOCATION, THE CONTRACTOR SHALL NOTIFY THE BOOR PRIOR TO SUBMISSION OF SHOP DRAWINGS.
- HANGING CEILING AND MECHANICAL LOADS: AN ALLOWANCE OF **5 PSF** HAS BEEN MADE FOR HANGING CEILING AND MECHANICAL EQUIPMENTS SUCH AS DUCT WORK AND SPRINKLER PIPES.
- LIVE LOADS:
 - VEHICULAR LOADS: **40 PSF**
 - OFFICE BUILDINGS:
 - LOBBIES AND FIRST-FLOOR CORRIDORS: **100 PSF | 2,000 LB**
 - OFFICES: **50 PSF | 2,000 LB**

(*) + LIVE LOAD REDUCTION NOT ALLOWED EXCEPT PER § 1607.10

- ROOF LIVE LOAD
 - ORDINARY, FLAT, PITCHED AND CURVED UNOCCUPIED ROOFS: **20 PSF, 300 LB**
- SNOW LOAD:
 - GROUND SNOW LOAD Pg: **5 PSF**
- WIND:
 - ULTIMATE DESIGN WIND SPEED V_{ULT}: **115 MPH (3-SEC. PEAK GUST)**
 - NOMINAL DESIGN WIND SPEED V_{DES}: **89 MPH (3-SEC. PEAK GUST)**
 - WIND EXPOSURE CATEGORY: **D**
 - INTERNAL PRESSURE COEFFICIENT: **+0.18**
 - COMPONENTS AND CLADDING PRESSURES: **SEE SCHEDULE**
 - MAIN WIND FORCE RESISTING SYSTEM: **BEARING WALLS - MASONRY SHEAR WALLS**
- RAIN:
 - 100-YEAR RAINFALL INTENSITY (IN-HR): **4.59**
 - MAXIMUM ROOF RAIN LOAD: **20 PSF**
 - MAXIMUM RAINWATER LEVEL: **PONDING (STATIC + HYDRAULIC HEAD)**
 - THE STRUCTURAL ENGINEER SHALL BE NOTIFIED IF THE TOTAL RAIN WATER LEVEL EXCEEDS THE DESIGNED RAIN ROOF LOAD.
- SEISMIC:
 - SEISMIC SPECTRAL RESPONSE VALUES, DESIGN SPECTRAL RESPONSE VALUES, AND AS SITE CLASS, HAVE BEEN PROVIDED BY: **GEOSCIENTIFIC ENGINEERS, LLC, REPORT NO. 21-026426 SUPPLEMENTAL**
 - GEOTECHNICAL COMPANY AND REPORT NO.: **GEOSCIENTIFIC ENGINEERS, LLC, REPORT NO. 21-026426 SUPPLEMENTAL**
 - MAFEP SPECTRAL RESPONSE ACCELERATION PARAMETERS, S_a & S_v: **0.09 & 0.03**
 - DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS, S_a & S_v: **0.074 & 0.026**
 - SITE CLASS: **D**
 - SEISMIC DESIGN CATEGORY, SDC: **4**
 - BASIC SEISMIC FORCE RESISTING SYSTEM(S): **BEARING WALL SYSTEM - ORDINARY REINFORCED MASONRY SHEAR WALL**
 - DESIGN BASE SHEAR: **18.3560K LBS/FT**
 - ANALYSIS PROCEDURE USED: **EQUIVALENT LATERAL FORCE**

C&C - GROSS ULTIMATE WIND PRESSURES

Cladding Type	Location	Effective Area (sq ft)	Coefficients		Wind pressures (psf)	
			G _z	G _z e _d	+ve (psf)	-ve (psf)
Wall	Interior	10	0.90	-0.99	+26.7	-29.0
		40	0.80	-0.89	+24.4	-26.6
		50	0.79	-0.88	+24.0	-26.2
		120	0.73	-0.82	+22.5	-24.7
		500	0.63	-0.72	+20.1	-22.3
Wall	Edge	10	0.90	-0.88	+26.7	-28.7
		40	0.80	-1.07	+24.4	-30.9
		50	0.79	-1.04	+24.0	-30.2
		120	0.73	-0.92	+22.5	-27.2
		500	0.63	-0.72	+20.1	-22.3
Roof	Interior	10	0.30	-1.00	+11.9	-22.3
		40	0.24	-0.94	+10.4	-21.7
		50	0.23	-0.93	+10.2	-21.5
		120	0.20	-0.90	+10.0	-21.7
		500	0.20	-0.90	+10.0	-21.7
Roof	Edge	10	0.30	-1.80	+11.9	-49.0
		40	0.24	-1.38	+10.4	-36.6
		50	0.23	-1.31	+10.2	-34.9
		120	0.20	-1.10	+10.0	-31.7
		500	0.20	-1.10	+10.0	-31.7
Roof	Corner	10	0.30	-2.80	+11.9	-73.8
		40	0.24	-1.78	+10.4	-48.4
		50	0.23	-1.61	+10.2	-44.4
		120	0.20	-1.10	+10.0	-31.7
		500	0.20	-1.10	+10.0	-31.7
Overhang	Interior	10	0.00	-1.70	+10.0	-42.1
		40	0.00	-1.44	+10.0	-40.6
		50	0.00	-1.63	+10.0	-40.4
		120	0.00	-1.54	+10.0	-38.2
		500	0.00	-1.10	+10.0	-27.2
Overhang	Corner	10	0.00	-2.80	+10.0	-69.0
		40	0.00	-1.40	+10.0	-39.5
		50	0.00	-1.40	+10.0	-34.7
		120	0.00	-0.80	+10.0	-19.8
		500	0.00	-0.80	+10.0	-19.8
Parapet	Interior	10	2.70	-1.89	+66.9	-46.8
		40	2.18	-1.70	+64.1	-42.1
		50	2.10	-1.47	+62.0	-41.3
		120	1.83	-1.55	+45.3	-38.3
		500	1.73	-1.35	+42.8	-33.4
Parapet	Edge	10	3.70	-2.16	+91.4	-53.5
		40	2.58	-1.87	+63.9	-44.4
		50	2.40	-1.83	+61.9	-43.2
		120	1.83	-1.45	+45.3	-40.7
		500	1.73	-1.35	+42.8	-33.4

o = MINIMUM OF 10% OF LEAST HORIZONTAL DIMENSION OR 0.4ft BUT NOT LESS THAN 4% OF LEAST HORIZONTAL DIMENSION OR 3ft

h = MEAN ROOF HEIGHT OF A BUILDING, EXCEPT THAT HAVE EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES LESS THAN OR EQUAL TO 10° (1:12 ROOF PITCH)

MEAN ROOF HEIGHT = THE AVERAGE OF THE ROOF EAVE HEIGHT AND HEIGHT TO THE HIGHEST POINT ON THE ROOF SURFACE.

DESCRIPTION		ZONE
ROOF INTERIOR		1
ROOF EDGE		2
ROOF CORNER		3
WALL INTERIOR		4
WALL EDGE		5

**FLAT /HIP/ GABLE ROOF - h ≤ 60
0' (0:12) < SLOPE ≤ 7' (1.5:12)**

FOUNDATION DESIGN CRITERIA

- GEOTECHNICAL REPORT: THIS FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS PROVIDED IN SITE-SPECIFIC GEOTECHNICAL REPORT. IN DESIGNING THE FOUNDATION FOR THE PROPOSED STRUCTURE, THE FOUNDATION DESIGN ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE ACCURACY OF THE GEOTECHNICAL ENGINEER'S REPORT OR ANY INFORMATION CONTAINED THEREIN. INFORMATION CONTAINED IN THE GEOTECHNICAL REPORT(S) REFLECTS CONDITIONS AS FOUND AT THE LOCATION OF THE BORINGS, ACTUAL CONDITIONS AT LOCATIONS BETWEEN AND SURROUNDING THE BORINGS MAY DIFFER FROM THE SOIL STRATIGRAPHY DEPICTED BY THE BORINGS. IF THERE ARE ANY CONDITIONS DIFFERING FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT, OR IF ANY CHANGES HAVE BEEN IMPROVED ON THE REPORT, THE REPORT WAS WRITTEN, THEN THE DESIGN ENGINEER OF RECORD SHOULD BE NOTIFIED IN WRITING PRIOR TO CONSTRUCTION OF THE FOUNDATION IN ORDER TO REVIEW THE EFFECTS ON THE DESIGN FOUNDATION.
 - GEOTECHNICAL ENGINEER: **GEOSCIENTIFIC ENGINEERS, LLC**
 - REPORT NUMBER: **21-026426 SUPPLEMENTAL**
 - REPORT DATE: **SEPTEMBER 7, 2022**
- THE FOUNDATION DESIGN PARAMETERS PROVIDED WILL NOT ELIMINATE POST-CONSTRUCTION FOUNDATION MOVEMENT. AS SUCH, MEASURES SHALL BE TAKEN TO INCREASE THE TOLERANCE OF THE STRUCTURE SUPPORTED BY THE FOUNDATION. MEASURES INCLUDE BUT ARE NOT LIMITED TO FREQUENT CONTROL JOINTS FOR MASONRY/BRICK/STONE/STUCCO EXTERIOR VENEER (15:0 MAXIMUM), VERTICALLY SLOTTED CLIPS TO ATTACH ROOF TRUSSES TO NON-LOAD BEARING WALLS, ETC.
- ABNORMAL CONDITIONS:** IF THE FOUNDATION IS INSTALLED DURING A DRY OR WET PERIOD, WHICH IS CONSIDERED EXTREME OR ABNORMAL, THEN THE BUILDER SHALL NOTIFY THE GEOTECHNICAL ENGINEER AND FOUNDATION ENGINEER PRIOR TO CONSTRUCTION FOR POSSIBLE SOIL CONDITIONING OR FOUNDATION RE-DESIGN.
- FOUNDATION MOVEMENT:** FOUNDATION MOVEMENT IS NOT ALLOWED. WITH THE ASSUMPTION THAT MOVEMENT CAN BE TOLERATED WITHIN A STANDARD PERFORMANCE LIMIT:
 - STANDARD PERFORMANCE DEFLECTION LIMIT: **L/360**
 - STANDARD PERFORMANCE TILT LIMIT: **1/3**
- SOIL MOISTURE LEVEL:** A REASONABLY UNIFORM SOIL MOISTURE LEVEL IS MAINTAINED AROUND THE FOUNDATION FOR THE LIFE OF THE STRUCTURE.
- FOUNDATION MAINTENANCE:** POSITIVE DRAINAGE AWAY FROM THE STRUCTURE SHALL BE MAINTAINED FOR THE LIFE OF THE STRUCTURE AND THE CONTRACTOR SHALL CONVEY THIS REQUIREMENT TO THE OWNER. THE INITIAL AND ALL SUBSEQUENT OWNERS MAINTAIN THE FOUNDATION IN ACCORDANCE WITH THE LATEST REVISION OF DOCUMENT NO. FPA-SC-07. "FOUNDATION MAINTENANCE AND INSPECTION GUIDE FOR RESIDENTIAL AND OTHER LOW-RISE BUILDINGS," AVAILABLE ON THE FOUNDATION PERFORMANCE ASSOCIATIONS' WEBSITE: WWW.FOUNDATIONPERFORMANCE.ORG. CONTRACTOR SHALL REVIEW THIS DOCUMENTATION PRIOR TO CONSTRUCTION OF THE FOUNDATION.
- EXPIRATION:** PLANS ARE VALID FOR 6 MONTHS FROM THE DATE THE PLANS ARE ISSUED OR REVISED BY THE ENGINEER. CONTACT ENGINEER FOR REVIEW IF PLANS HAVE EXPIRED OR FOR CONSTRUCTION OF THE FOUNDATION HAS NOT COMMENCED WITHIN THIS TIME FRAME.
- GEOTECHNICAL LOAD BEARING VALUES OF SOIL**
 - SHALLOW FOOTING BEARING CAPACITY: **2,000 PSF (ALLOWABLE)**

LATERAL LOAD RESISTING SYSTEM

- ALL LATERAL LOAD RESISTANCE AND STABILITY OF THE BUILDING IS PROVIDED EXCLUSIVELY BY VERTICAL LATERAL LOAD RESISTING SYSTEM, THE HORIZONTAL DIAPHRAGMS DISTRIBUTE THE LATERAL WIND AND SEISMIC FORCES HORIZONTALLY TO THE VERTICAL LATERAL LOAD RESISTING SYSTEM.
 - VERTICAL LATERAL LOAD RESISTING SYSTEM: **CMU SHEAR WALLS**
 - HORIZONTAL LATERAL LOAD RESISTING SYSTEM: **METAL STRUCTURAL PANELS ROOF DECK**

STAIR, HANDRAILS, RESTROOM ACCESSORIES AND GUARDRAIL SPECIFICATIONS:

- ALL STAIRS, GUARDRAILS AND HANDRAILS SHALL BE DESIGNED BY A REGISTERED STRUCTURAL ENGINEER BASED ON THE FOLLOWING DESIGN CRITERIA:
 - STAIRS:
 - STAIR STRINGERS, TREADS AND RISERS SHALL BE DESIGNED TO SUPPORT 100 PSF LIVE LOAD.
 - INDIVIDUAL STAIR TREADS SHALL BE DESIGNED TO SUPPORT A 300 LB CONCENTRATED LOAD PLACED IN A POSITION THAT WOULD CAUSE THE MAX STRESS.
 - HANDRAIL AND GUARDS:
 - GUARD TOP RAIL AND HANDRAILS: THE TOP RAIL OF GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 50 PF APPLIED HORIZONTALLY AT RIGHT ANGLES OR A 200 LB CONCENTRATED LOAD IN ANY DIRECTION TO THE CHAIR OR POST.
 - INTERMEDIATE RAILS, PANEL FILLER AND THEIR CONNECTIONS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 50 PSF APPLIED HORIZONTALLY AT RIGHT ANGLES OVER THE ENTIRE TRIBUTARY AREA, INCLUDING OPENINGS AND SPACES BETWEEN RAILS.
 - RESTROOM ACCESSORIES:
 - GRAB BARS, TUB AND SHOWER SEATS, FASTENERS, AND MOUNTING DEVICES SHALL BE DESIGNED TO RESIST A CONCENTRATED LOAD OF 250 POUNDS AT ANY LOCATION AND IN ANY DIRECTION.

STRUCTURAL DEFERRED SUBMITTALS:

- STRUCTURAL DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH REQUIRE STRUCTURAL ENGINEERING THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION BUT TO BE SUBMITTED TO THE BUILDING OFFICIAL AT A LATER DATE. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO AND APPROVED BY THE BUILDING OFFICIAL PRIOR TO INSTALLATION OF THE PORTION OF THE PROJECT WHICH THEY RELATE TO.
 - COMPLETE REINFORCING BAR SHEETS SHALL CONFORM TO ASTM A153, GRADE 60, WITH SUPPLEMENTARY REQUIREMENTS.
 - COMPLETE STRUCTURAL SHOP DRAWINGS FOR CONSTRUCTION OF EACH BUILDING COMPONENT NOT DESIGNED BY THE STRUCTURAL ENGINEER OF RECORD (SEE) AND NOT SPECIFIED ON THE PROJECT CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY A SPECIALTY STRUCTURAL ENGINEER (SSE) WHO IS A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BEING CONSTRUCTED WHO IS QUALIFIED TO PERFORM SAID WORK. A SEAL BY A LICENSED PROFESSIONAL ENGINEER IS NOT REQUIRED FOR OTHER PORTIONS WHICH HAVE BEEN TESTED AND CERTIFIED BY AN APPROVED AGENCY SUCH AS THE CC NOR FOR COMPONENTS WHICH ARE FABRICATED BY A FABRICATOR THAT IS CERTIFIED BY AN APPROVED AGENCY IN WHICH THE QUALITY SPECIFIED THAT SEALING OF THE SHOP DRAWINGS IS NOT REQUIRED (E.G. STEEL JOIST INSTITUTE IN REGARDS TO OPEN WEB STEEL JOISTS)
 - THE SPECIALTY STRUCTURAL ENGINEER (SSE) SHALL SPECIFICALLY INDICATE IN A COVER PAGE AT THE FRONT OF THE SHOP DRAWING THAT THEY ARE THE STRUCTURAL ENGINEER IN RESPONSIBLE CHARGE FOR THE DEFERRED SUBMITTAL AND THAT THEY HAVE REVIEWED THE SHOP DRAWING TO ENSURE COMPLIANCE WITH THEIR DESIGN AND CALCULATIONS.
 - ALL STRUCTURAL DEFERRED SUBMITTALS SHALL BE REVIEWED BY THE SEE AND MARKED AS EITHER NO EXCEPTIONS OR EXCEPTION NOTED. PRIOR TO SUBMITTING TO THE FOR THE BOOR FOR VERIFICATION OF THE ADEQUACY OF SUPPORTING MEMBERS PRIOR TO THE SUBMISSION OF SHOP DRAWINGS.
- STRUCTURAL DEFERRED SUBMITTALS ON THIS PROJECT INCLUDE:
 - EXTERIOR CLADDING SYSTEMS (NOT REQUIRED IF USING CERTIFIED AND TESTED PRODUCTS/ASSEMBLIES)
 - CURTAIN WALL, STOREFRONT, WINDOWS (NOT REQUIRED IF USING CERTIFIED AND TESTED PRODUCTS/ASSEMBLIES)
 - SUPPORT TO STRUCTURE FOR: HVAL FANS, OPERABLE PARTITIONS, MEP UTILITIES EQUIPMENT
 - FRAMINGS, CANOPIES, LOUVERS, ETC.

GENERAL CONDITIONS

- THE CONTRACTOR'S STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR QUALITY CONTROL, INCLUDING WORKMANSHIP AND MATERIALS FURNISHED BY SUB CONTRACTORS AND SUPPLIERS.
- REFER TO DRAWINGS OTHER THAN STRUCTURAL FOR COMPLETE INFORMATION REGARDING: SLEEVES, CURBS, INSERTS, DEPRESSIONS, OPENINGS, ETC.
- IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST REVISIONS/ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUB CONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS OR MATERIAL PREVIOUSMENT.
- THE USE OR REPRODUCTION OF MATERIAL SUPPLIER IN ANY OF THESE CONSTRUCTION OR SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND OBLIGATES HIMSELF TO ANY JOB DEFENSE, REAL OR IMPLIED, DUE TO ANY ERRORS THAT MAY OCCUR HEREON.
- ALL WORK SHALL CONFORM TO OSHA STANDARDS.
- THE CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF THE FOLLOWING INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL CODES AND EXCAVATIONS OF THE AUTHORITY HAVING JURISDICTION.
- THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCIES BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.
- FRAMING LAYOUTS ARE PROVIDED TO REPRESENT DESIGN CONCEPTS AND SYSTEMS CONSTRUCTION. THE CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR MATERIAL QUANTITIES AND ANY AND ALL UNSPECIFIED COMPONENTS REQUIRED FOR CONSTRUCTION.
- WHERE MEMBER LOCATIONS ARE NOT SPECIFICALLY DIMENSIONED, MEMBERS ARE EITHER LOCATED ON COLUMN LINES OR ARE EQUALLY SPACED BETWEEN THE LOCATED MEMBERS.
- IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SHOWN OR SPECIFIED IN SIMILAR CONDITIONS.
- WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
- THE FLOOR DESIGN LIVE LOAD FOR EACH ELEVATED FLOOR STRUCTURE OR PORTION THEREOF THAT EXCEEDS 50 POUNDS PER SQUARE FOOT (PSF) SHALL BE STATED ON DURABLE SIGNS AND CONSPICUOUSLY POSTED BY THE OWNER IN THE APPLICABLE AREAS OF THE BUILDING.
- ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND USEFUL AND ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE SUCH ITEMS AS, BUT NOT LIMITED TO, PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A SALINE ENVIRONMENT OR OTHER HARMFUL CHEMICALS.
- THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION OF THE STRUCTURE.
- THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION METHODS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUB CONTRACTOR, OR ANY OTHER PERSONS PERFORMING THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF THE STRUCTURAL ENGINEER IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK COMPLETED AND DETERMINING, IN GENERAL, IF THE WORK OBSERVED IS BEING PERFORMED IN A MANNER INDICATING THAT THE WORK, WHEN FULLY COMPLETED, WILL BE IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.
- WATERPROOFING OF THE BUILDING ENVELOPE IS OF CRITICAL IMPORTANCE TO LONG-TERM STRUCTURAL PERFORMANCE. WATERPROOFING SHALL BE THE RESPONSIBILITY OF THE ARCHITECT/CONTRACTOR AND SHALL BE IN ACCORDANCE WITH BEST PRACTICES FOR THE LOCALITY AND THE PARTICULAR ASSEMBLY.

CONTRACTOR QUALIFICATION

- WORK SHALL BE PERFORMED BY A QUALIFIED CONSTRUCTION CONTRACTOR AND SUB CONTRACTOR EXPERIENCED IN THIS TYPE OF WORK. SUCH KNOWLEDGE SHALL INCLUDE MAJOR ALLOWANCES FOR THE PROPOSED WORK AS REQUIRED BY THE ARCHITECT OR ENGINEER OF RECORD.
- THE CONSTRUCTION CONTRACTOR AND SUB CONTRACTORS SHALL UNDERSTAND THE NATURE OF DRAWING PRODUCTION AND COORDINATION BETWEEN CONSULTANTS AND SHALL NOT ENTER INTO A CONTRACT BASED ON DRAWINGS THAT ARE BELIEVED TO CONTAIN DISCREPANCIES OR ARE OTHERWISE INCOMPLETE, UNLESS PROPER ALLOWANCES HAVE BEEN MADE FOR SUCH IMPLICATIONS THAT MAY ARISE DUE TO FUTURE DRAWING CHANGES MADE IN PREPARATION OF FINAL CONSTRUCTION DOCUMENTS.
- IN THE COURSE OF PRODUCING AND ISSUING DRAWINGS, VARIOUS STAGES OF COMPLETION ARE DEVELOPED. THE CONSTRUCTION CONTRACTOR AND SUB CONTRACTORS SHALL UNDERSTAND THE PURPOSE AND CONTENT CONTAINED IN PERMIT, PRICING, AND CONSTRUCTION DRAWINGS. COST IMPLICATIONS AND CONTRACTIBILITY ARE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR AND SUB CONTRACTORS UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE WITH THE OWNER.

FUTURE EXPANSION

- NO PROVISIONS FOR ANY FUTURE EXPANSION HAVE BEEN MADE IN THE STRUCTURAL DESIGN.

SUBSTITUTIONS:

- ALL REQUESTS FOR SUBSTITUTIONS OF MATERIALS OR DETAILS SHOWN IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED FOR APPROVAL DURING THE BIDDING PERIOD. ONCE BIDS ARE ACCEPTED, PROPOSED SUBSTITUTIONS WILL BE CONSIDERED ONLY WHEN THEY ARE OFFICIALLY SUBMITTED WITH AN IDENTIFIED SAVINGS TO BE DEDUCTED FROM THE CONTRACT.

REQUEST FOR INFORMATION (RFI)

- RFIS MUST INCLUDE A TRANSMITTAL SHEET THAT INDICATES THE FOLLOWING:
 - RFI NUMBER
 - RFI CATEGORY:
 - REQUEST FOR SUBSTITUTION
 - CORRECTIVE REPAIR
 - ADDITIONAL INFORMATION REQUIRED
 - DISCREPANCY BETWEEN CONSTRUCTION DOCUMENTS
 - DATE SUBMITTED
 - DATE RESPONSE NEEDED
 - SUBMITTED BY (INCLUDE EMAIL AND PHONE NUMBER)
 - RFI DESCRIPTION INCLUDING:
 - SHEET NUMBER, DETAIL AND/OR SPECIFICATION NUMBER IF APPLICABLE
 - SKETCHES IF APPLICABLE
 - PHOTOS IF APPLICABLE.

SUBMITTALS

- SUBMITTAL LIST AND SCHEDULE
- THE GENERAL CONTRACTOR SHALL PREPARE A DETAILED LIST AND SCHEDULE OF ALL SUBMITTAL ITEMS TO BE SENT TO THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION. THIS LIST SHALL BE UPDATED AND REVISED AS THE JOB PROGRESSES.
- SUBMITTAL REQUIREMENTS:
 - ALL SUBMITTALS SHALL BE REVIEWED AND ELECTRONICALLY STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE DESIGN TEAM AS NO EXCEPTIONS.
 - ALL SUBMITTALS MUST INCLUDE A TRANSMITTAL SHEET WHICH INDICATES:
 - SUBMITTAL NUMBER PER THE FOLLOWING FORMAT: E.G. 03 30 01.00 (DIVISION, SUBMITTAL # FOR DIVISION, ISSUE # - THE EXAMPLE INDICATES THE FIRST SUBMITTAL, FIRST ISSUE OF A CONCRETE SUBMITTAL)
 - BRIEF DESCRIPTION OF SUBMITTAL CONTENTS
 - DATE ISSUED
 - REQUESTED RETURN DATE
 - ISSUING PARTY INCLUDING NAME, PHONE NUMBER AND EMAIL
 - CONTRACTOR SHALL PROVIDE THE SUBMITTAL IN ELECTRONIC (PDF) FORMAT. SUBMITTALS SHALL NOT BE SCANNED COPIES OF PRINTED DOCUMENTS.
 - THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIALS REQUIRED BY THE CONTRACT DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER SHOWN OR COMMENTED IN THE SHOP DRAWING.
 - THE CONTRACTOR MUST ALLOW A MINIMUM OF 14 DAYS FOR STRUCTURAL REVIEW OF ALL SUBMITTALS. THE CONTRACTOR CAN REQUEST AN EXPEDITED REVIEW AT AN AGREED UPON RATE WITH THE STRUCTURAL ENGINEER.
 - STRUCTURAL STEEL SUBMITTALS MUST BE ACCOMPANIED BY THE SDS2 OR TELA MODEL WHICH WILL BE USED BY THE DESIGN TEAM AS A VISUAL AID TO THE SHOP DRAWINGS.
- REFER TO THE SPECIFICATIONS FOR A LIST OF ALL THE REQUIRED SUBMITTALS.
- ENGINEER REVIEW STAMP DESIGNATIONS: ALL DESIGNATIONS ARE INDICATIVE OF A REVIEW FOR GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS.
 - NO EXCEPTIONS
 - NO ITEMS WERE FOUND TO BE IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS, NO "FOR REVIEW" SUBMITTAL REQUIRED.
 - EXCEPTIONS NOTED
 - ITEMS WERE FOUND IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS AND NEED TO BE REVISED PRIOR TO SUBMITTING "FOR CONSTRUCTION" SUBMITTAL.
 - REVISE AND RESUBMIT
 - SIGNIFICANT ITEMS WERE FOUND IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS, THE SUBMITTAL NEEDS TO BE RESUBMITTED "FOR REVIEW" NOT REVIEWED
 - THE SUBMITTAL WAS NOT STRUCTURAL
 - FOR INFORMATION ONLY
 - THE SUBMITTAL DID NOT REQUIRE REVIEW BUT HAS BEEN SPECIALLY FLAGGED FOR THE RECORD.
 - IMPACT TO STRUCTURE
 - THE SUBMITTAL HAS BEEN REVIEWED FOR THE STRUCTURALLY IMPACT TO THE STRUCTURE ONLY.

INSPECTIONS:

- CONSTRUCTION OR WORK FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL AND SUCH CONSTRUCTION OR WORK SHALL REMAIN ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL APPROVED. REQUIRED TESTING INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
 - FOUNDATION INSPECTION:
 - FOOTING AND FOUNDATION INSPECTIONS SHALL BE MADE AFTER EXCAVATIONS FOR FOOTINGS ARE COMPLETE AND ANY REQUIRED REINFORCING STEEL IS IN PLACE. FOR CONCRETE FOUNDATIONS, ANY REQUIRED FORMS SHALL BE IN PLACE PRIOR TO INSTALLING MATERIALS FOR THE FOUNDATION SHALL BE ON THE JOB, EXCEPT WHERE CONCRETE IS READY MIXED IN ACCORDANCE WITH ASTM C94. THE CONCRETE NEED NOT BE ON THE JOB.
 - CONCRETE SLAB AND UNDER-FLOOR INSPECTION:
 - CONCRETE SLAB AND UNDER-FLOOR INSPECTION SHALL BE MADE AFTER IN-SLAB OR UNDER-FLOOR REINFORCING STEEL AND BUILDING SERVICE EQUIPMENT, CONDUIT, PIPING ACCESSORIES AND OTHER AUXILIARY EQUIPMENT ITEMS ARE IN PLACE, BUT BEFORE ANY CONCRETE IS PLACED OR FLOOR FINISHING IS INSTALLED, INCLUDING THE SUB-FLOOR.
 - FRAME INSPECTION:
 - FRAMING INSPECTIONS SHALL BE MADE AFTER THE ROOF DECK OR SHEATHING, ALL FRAMING, FIREBLOCKING AND BRACING ARE IN PLACE AND PIPES, CHIMNEYS AND VENTS TO BE CONCEALED ARE COMPLETE AND THE THOUGH ELECTRICAL FUMING, HEATING Wires, PIPES AND DUCTS ARE APPROVED.
- ADDITIONAL INSPECTIONS REFER TO THE STATEMENT OF SPECIAL INSPECTION FOR REQUIRED STRUCTURAL SPECIAL INSPECTIONS.

DRAWING INTERPRETATION:

- DRAWING VIEWS LABELED AS TYPICAL
 - PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAIL OR SCHEDULES LABELED WITH "TYPICAL" AT THE BEGINNING OF THEIR TITLE SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THE ONE SHOWN TO THE RIGHT OF THE TITLE OF THESE VIEWS TO LOCATIONS ON THE PLAN CAN BE DETERMINED FROM THE TITLE OF THE VIEW. SUCH VIEWS SHALL APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. DECISIONS REGARDING APPLICABILITY OF THESE "TYPICAL" VIEWS SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER.
 - COLORS: THESE DRAWINGS ARE INTENDED TO BE VIEWED IN COLOR. IF THE FOLLOWING COLORS ARE NOT RED GREEN BLUE THEN THIS DRAWING SET IS NOT BEING VIEWED AS INTENDED.
 - SCALE: IF THE FOLLOWING LINE IS NOT EXACTLY 1" LONG, THEN THIS SET HAS BEEN SCALED.

REINFORCING STEEL - 03 20 00

- DETAILING OF CONCRETE REINFORCING BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF THE ACI DETAILING MANUAL ACI 315 AND SP-44 (ACI DETAILING MANUAL).
- CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A153, GRADE 60, WITH SUPPLEMENTARY REQUIREMENTS.
- COMPLETE REINFORCING DETAIL DRAWINGS PREPARED IN ACCORDANCE WITH ACI 315 SHALL BE REVIEWED BY THE ENGINEER AND AVAILABLE ON THE JOB SITE PRIOR TO & DURING THE PLACING OF CONCRETE.
- ALL REINFORCING STEEL SHALL BE SUPPORTED AT DESIGNED DEPTH USING PLASTIC OR METALLIC CHAIRS SPACED AT 48" OC IN ALL DIRECTIONS TO SUPPORT FULL LENGTH OF REINFORCING BARS. 3" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN CHAIRS AND REINFORCING BARS.
- END HOOKS, DEVELOPMENT LENGTHS, AND SPLICES SHALL CONFORM TO THE REQUIREMENTS OF ACI 318.
- REINFORCEMENT MAY BE PLACED IN BUNDLES OF NOT MORE THAN TWO WY. THE CLEAR DISTANCE BETWEEN BUNDLES OF REINFORCEMENT OR TENDONS OF 3 INCHES MINIMUM. CONCRETE COVER NOT SPECIFICALLY DETAILED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH ACI 318.
- COVER: THE FOLLOWING COVER SHALL BE THE MINIMUM REINFORCEMENT CONCRETE COVERAGE (INCLUDING TENDONS):
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO WEATHER:
 - CONCRETE EXPOSED TO EARTH OR WEATHER: **3"**
 - NO. 4 AND LARGER: **5"**
 - NO. 3 BAR AND SMALLER: **1 1/2"**
 - CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: **2"**
- UNDO, ALL LAP SPLICES OF REINFORCEMENT IN GROUND SUPPORT ELEMENTS (GRADE BEAMS, FOOTINGS, MAT FOUNDATIONS) SHALL BE A MINIMUM OF 480, WHERE Ø = THE DIAMETER OF THE BAR. REINFORCEMENT IN ELEVATED STRUCTURES SHALL REFER TO THE TYPICAL LAP SPLICE DETAIL.

STRUCTURAL STATEMENT OF SPECIAL INSPECTIONS & TESTING

- SPECIAL INSPECTIONS AND STRUCTURAL TESTING SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER FOR THE ITEMS IDENTIFIED IN THIS SECTION AND IN OTHER AREAS OF THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS. (SEE IBC CHAPTER 17).
- THE NAMES AND CREDENTIALS OF THE SPECIAL INSPECTORS TO BE USED SHALL BE SUBMITTED TO THE BUILDING OFFICIAL FOR APPROVAL. DUDLEY ENGINEERING CAN BE SOICITED TO PROVIDE SPECIAL INSPECTIONS. WE RECOMMEND THAT THE PROJECT GEOTECHNICAL ENGINEER BE SOICITED TO PROVIDE SPECIAL INSPECTIONS FOR THE SOILS AND TESTING FOR THE SOIL AND CONCRETE.
- DUTIES OF THE SPECIAL INSPECTOR:
 - THE SPECIAL INSPECTOR SHALL REVIEW ALL WORK LISTED BELOW FOR CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AND THE IBC.
 - THE SPECIAL INSPECTOR SHALL FURNISH SPECIAL INSPECTION REPORTS TO THE EOR, CONTRACTOR, OWNER AND BUILDING OFFICIAL ON A WEEKLY BASIS, OR MORE FREQUENTLY AS REQUIRED BY THE BUILDING OFFICIAL. ALL ITEMS NOT IN COMPLIANCE SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF UNCORRECTED, TO THE EOR AND THE BUILDING OFFICIAL.
 - ONCE CORRECTIONS HAVE BEEN MADE BY THE CONTRACTOR, THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE BUILDING OFFICIAL STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AS WELL AS THE APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC.
- DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:
 - THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER AND THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF WORK. IN ACCORDANCE WITH IBC 1704.4, THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED WITHIN THIS "STATEMENT OF SPECIAL INSPECTIONS".
 - THE CONTRACTOR SHALL NOTIFY THE RESPONSIBLE SPECIAL INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.
 - ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT HAS BEEN OBSERVED BY THE SPECIAL INSPECTOR.
- PLEASE SEE THE "SPECIAL INSPECTION SCHEDULE" FOR THE TYPES, EXTENT AND FREQUENCY OF SPECIFIC ITEMS REQUIRING SPECIAL INSPECTIONS AND STRUCTURAL TESTS AS PART OF THIS PROJECT.
- REFER TO ARCHITECTURAL AND/OR MEP DRAWINGS FOR ADDITIONAL SPECIAL INSPECTION REQUIRED. DUDLEY ENGINEERING HAS LISTED THE STRUCTURAL SPECIAL INSPECTIONS AND TESTING.

WIND-RESISTING COMPONENTS (1705.11.3)

PERIODIC SPECIAL INSPECTION IS REQUIRED FOR FASTENING OF THE FOLLOWING SYSTEMS AND COMPONENTS:
 1. ROOF COVERING, ROOF DECK AND ROOF FRAMING CONNECTIONS.
 2. EXTERIOR WALL COVERING AND WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING

REQUIRED VERIFICATION AND INSPECTION OF SOILS (TABLE 1705.4)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X	YES
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIALS	-	X	YES
PERFORM CLASSIFICATION AND TESTING OF COMPACTED MATERIALS	-	X	YES
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	-	YES
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THE SITE HAS BEEN PREPARED PROPERLY	-	X	YES

REQUIRED VERIFICATION AND INSPECTION OF GRADING AND DRAINAGE FOR FOUNDATIONS ON EXPANSIVE SOILS

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
AFTER BUILDING CONSTRUCTION AND LANDSCAPING HAVE BEEN COMPLETED, FINAL GRADES SHALL BE VERIFIED TO DOCUMENT REQUIRED DRAINAGE	-	X	YES
AFTER BUILDING CONSTRUCTION AND LANDSCAPING HAVE BEEN COMPLETED, DOWNSPOUTS SHALL BE INSPECTED TO CONFIRM CONFORMANCE.	-	X	YES
GRADES AROUND THE STRUCTURE SHALL BE PERIODICALLY INSPECTED AND ADJUSTED AS PART OF THE BUILDING'S MAINTENANCE PROGRAM.	-	X	YES
PLUMBING LEAK "HYDROSTATIC" TEST PERFORMED BY A LICENSED PLUMBER, TEST TO OCCUR AFTER ROUGH PLUMBING INSTALL	-	X	YES
WHERE PAVING/PLATWORK ADJUT THE FOUNDATION, A MAINTENANCE PROGRAM SHALL BE ESTABLISHED TO EFFECTIVELY SEAL AND MAINTAIN JOINTS AND PREVENT SURFACE WATER INFILTRATION.	-	X	YES

REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION (§1705.4) - LEVEL B QUALITY ASSURANCE

MINIMUM TESTING			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
VERIFICATION OF SLUMP, FLOW AND VISUAL STABILITY INDEX AS DELIVERED TO PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 & 1.6.3 FOR SELF-CONSOLIDATING GROUT	-	X	YES
VERIFICATION OF f'm IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 & 1.6 PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPT.	-	X	YES
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.	-	X	YES
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:	-	X	YES
A. PROPORTIONS OF SITE-PREPARED MORTAR.	-	X	YES
B. CONSTRUCTION OF MORTAR JOINTS	-	X	YES
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE	-	X	YES
A. GROUT SPACE	-	X	YES
B. GRADE, TYPE AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	-	X	YES
C. PLACEMENT OF REINFORCEMENT AND CONNECTORS.	-	X	YES
D. PROPORTIONS OF SITE-PREPARED GROUT.	-	X	YES
E. CONSTRUCTION OF MORTAR JOINTS	-	X	YES
4. VERIFY DURING CONSTRUCTION	-	X	YES
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	-	X	YES
B. TYPE, SIZE AND LOCATION OF ANCHOR INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	-	X	YES
C. WELDING OF REINFORCEMENT	-	X	NO
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (< 40°F) OR HOT WEATHER (> 90°F)	-	X	YES

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION (TABLE 1705.3)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT.	-	X	YES
INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN USED OR STRENGTH DESIGN IS USED.	-	X	YES
INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.	-	X	YES
VERIFYING USE OF REQUIRED MIX DESIGN	-	X	YES
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	-	YES
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	YES
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURES AND TECHNIQUES	-	X	YES
INSPECTION OF PRESTRESSED CONCRETE	-	-	NO
APPLICATION OF PRESTRESSING FORCES	X	-	NO
ERECTION OF PRECAST CONCRETE MEMBERS	-	X	NO
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	YES
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	YES

REQUIRED VERIFICATION AND INSPECTION OF STRUCTURAL STEEL CONSTRUCTION (§1705.2.1)

STRUCTURAL STEEL - GENERAL
THE SPECIAL INSPECTOR SHALL INSPECT THE FABRICATED OR ERECTED STEEL FRAME, AS APPROPRIATE, TO VERIFY COMPLIANCE WITH THE DETAIL SHOWN ON THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

STRUCTURAL STEEL - ANCHOR RODS / EMBED PLATES

THE SPECIAL INSPECTOR SHALL BE ON THE PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENT SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS, AS A MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR RODS OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED PRIOR TO PLACEMENT OF CONCRETE.

STRUCTURAL STEEL - WELDS

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
INSPECTION TASKS PRIOR TO WELDING (AISC 340 TABLE N5.4-1)			
WELDING PROCEDURE SPECIFICATION (WPS) AVAILABLE	X	-	YES
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X	-	YES
MATERIAL IDENTIFICATION (TYPE / GRADE)	-	X	YES
WELDER IDENTIFICATION SYSTEM	-	X	YES
FIT-UP GROOVE WELDS	-	X	NO
CONFIGURATION AND FINISH OF ACCESS HOLES	-	X	NO
FIT-UP FILLET WELDS	-	X	YES
CHECK WELDING EQUIPMENT	-	X	YES
INSPECTION TASKS DURING WELDING (AISC 340 TABLE N5.4-2)			
USE OF QUALIFIED WELDERS	-	X	YES
CONTROL AND HANDLING OF WELDING CONSUMABLES	-	X	YES
NO WELDING OVER CRACKED LACK WELDS	-	X	YES
ENVIRONMENTAL CONDITIONS (WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE)	-	X	YES
WPS FOLLOWED	-	X	YES
• SETTINGS ON WELDING EQUIPMENT	-	X	YES
• TRAVEL SPEED	-	X	YES
• SELECTED WELDING MATERIALS	-	X	YES
• SHIELDING GAS TYPE / FLOW RATE	-	X	YES
• PREHEAT APPLIED	-	X	YES
• INTERPASS TEMPERATURE MAINTAINED (MIN/ MAX)	-	X	YES
• PROPER POSITION (E, V, H, OH)	-	X	YES
WELDING TECHNIQUES	-	X	YES
• INTERPASS AND FINAL CLEANING	-	X	YES
• EACH PASS WITHIN PROFILE LIMITATIONS	-	X	YES
• EACH PASS MEET QUALITY REQUIREMENTS	-	X	YES
WELDS CLEANED	-	X	YES
SIZE, LENGTH AND LOCATION OF WELDS	X	-	YES
WELDS MEET VISUAL ACCEPTANCE CRITERIA	X	-	YES
• CRACK PROHIBITION	X	-	YES
• WELD / BASE-METAL FUSION	X	-	YES
• CRACKER CROSS SECTION	X	-	YES
• WELD PROFILES	X	-	YES
• WELD SIZE	X	-	YES
• UNDERCUT	X	-	YES
• POROSITY	X	-	YES
ARC STRIKES	X	-	YES
k-AREA	X	-	YES
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	X	-	YES
REPAIR ACTIVITIES	X	-	YES
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT MEMBER	X	-	YES
	X	-	YES

NON-DESTRUCTIVE TESTING OF WELDED JOINTS

FILLET WELDS:	CONTINUOUS	PERIODIC	REQUIRED
MT TEST A MINIMUM OF 10% OF THE LENGTH OF EACH FILLET WELD EXCEEDING 5/16"	-	X	YES
PERIODIC MT TESTING OF REPRESENTATIVE FILLET WELDS 5/16" AND LESS BUT NEED NOT EXCEED 10% OF ALL SUCH WELDS, EXCEPT AS REQUIRED FOR HIGH REJECTION RATES AS INDICATED IN THE FOLLOWING PARAGRAPH.	-	X	YES
INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS.	X	-	YES
PARTIAL JOINT PENETRATION (PJP) WELDS INCLUDING FLARE BEVEL WELDS			
MT TEST A MINIMUM OF 25% OF THE LENGTH OF EACH PJP WELD EXCEEDING 5/16" EFFECTIVE THROAT.	-	X	YES
PERIODIC MT TESTING OF REPRESENTATIVE PJP WELDS 5/16" AND LESS BUT NEED NOT EXCEED 10% OF ALL SUCH WELDS, EXCEPT AS REQUIRED FOR HIGH REJECTION RATES AS INDICATED IN THE FOLLOWING PARAGRAPH.	-	X	YES
INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS	X	-	YES
COMPLETE JOINT PENETRATION (CJP) WELDS			
ALL CJP WELDS EXCEEDING 5/16" THICKNESS SHALL BE 100% UT TESTED PER AWS D1.1 CLAUSE 6 PART F. THE TESTING LABORATORY SHALL REVIEW THE CJP JOINTS TO DETERMINE WHERE GEOMETRY OR ACCESSIBILITY PRECLUDES THE USE OF STANDARD SCANNING PATTERNS PER AWS D1.1 CLAUSE 6 PART F. AT THESE LOCATIONS THE TESTING LABORATORY SHALL DEVELOP AND SUBMIT FOR APPROVAL A WRITTEN TESTING PROCEDURE IN ACCORDANCE WITH AWS D1.1 ANNEX K.	X	-	YES
PERIODIC MT TESTING OF REPRESENTATIVE CJP WELDS 5/16" AND LESS NOT TO EXCEED 10% OF ALL SUCH WELDS.	-	X	YES
INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS.	X	-	YES

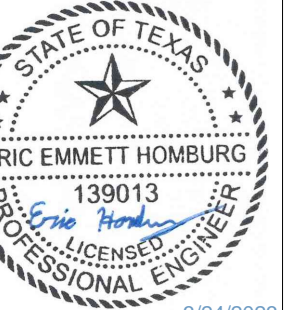
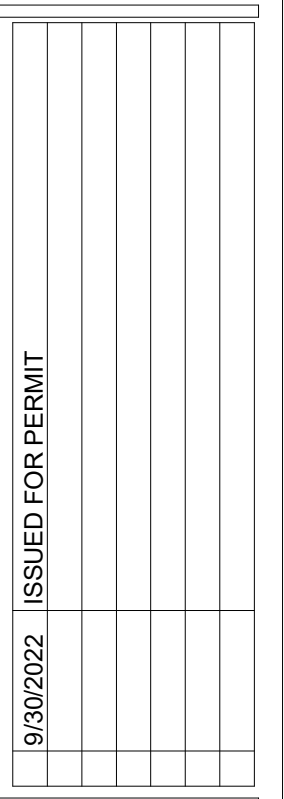
STRUCTURAL STEEL HIGH-STRENGTH BOLTS (SNUG-TIGHT) - INSPECTION TASKS PRIOR TO BOLTING			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
DOCUMENTATION AND ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (PRETENSIONED) - INSPECTION TASKS PRIOR TO BOLTING			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
MFR. CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	-	X	YES
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	-	X	YES
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	-	X	YES
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	-	X	YES
CONNECTING ELEMENTS, INCLUDE THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	-	X	YES
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSON, OBSERVED AND DOCUMENTED FOR FASTENERS ASSEMBLES AND METHODS USED	X	-	YES
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (PRETENSIONED) - INSPECTION TASKS DURING BOLTING			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	-	X	YES
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO PRETENSIONING OPERATION	-	X	YES
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	-	X	YES
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARDS THE FREE EDGES	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (TURN-OF-NUT)			
TURN-OF-NUT PRETENSIONING: THE INSPECTOR SHALL OBSERVE THE PRE-INSTALLATION VERIFICATION TESTING REQUIRED IN SECTION 8.2. SUBSEQUENTLY, IT SHALL BE ENSURED BY ROUTINE OBSERVATION THAT THE BOLTING CREW PROPERLY ROTATES THE TURNED ELEMENT RELATIVE TO THE UNTURNED ELEMENT BY THE AMOUNT SPECIFIED IN TABLE 8.2. ALTERNATIVELY, WHEN FASTENER ASSEMBLIES ARE MATCH-MARKED AFTER THE INITIAL FIT-UP OF THE JOINT BUT PRIOR TO PRETENSIONING, VISUAL INSPECTION AFTER PRETENSIONING IS PERMITTED IN LIEU OF ROUTINE OBSERVATION. NO FURTHER EVIDENCE OF CONFORMITY IS REQUIRED. A PRETENSION THAT IS GREATER THAN THE VALUE SPECIFIED IN TABLE 8.1 SHALL NOT BE CAUSE FOR REJECTION. A ROTATION THAT EXCEEDS THE REQUIRED VALUES, INCLUDING TOLERANCE, SPECIFIED IN TABLE 8.2 SHALL NOT BE CAUSE FOR REJECTION.			
TABLE 8.2: NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING			
BOLT LENGTH	DISPOSITION OF OUTER FACES OF BOLTED PARTS		
	BOTH FACE NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS
LENGTH ≤ 4d _b	1/3 TURN	1/2 TURN	2/3 TURN
4d _b < LENGTH ≤ 8d _b	1/2 TURN	2/3 TURN	5/6 TURN
8d _b < LENGTH ≤ 12d _b	2/3 TURN	5/6 TURN	1 TURN
a. NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR ALL REQUIRED ROTATIONS, THE TOLERANCE IS PLUS 40° AND MINUS 30°			
b. APPLICABLE TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.			

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (SNUG-TIGHT) - INSPECTION TASKS DURING BOLTING			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
DOCUMENTATION OF ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS.	-	X	YES



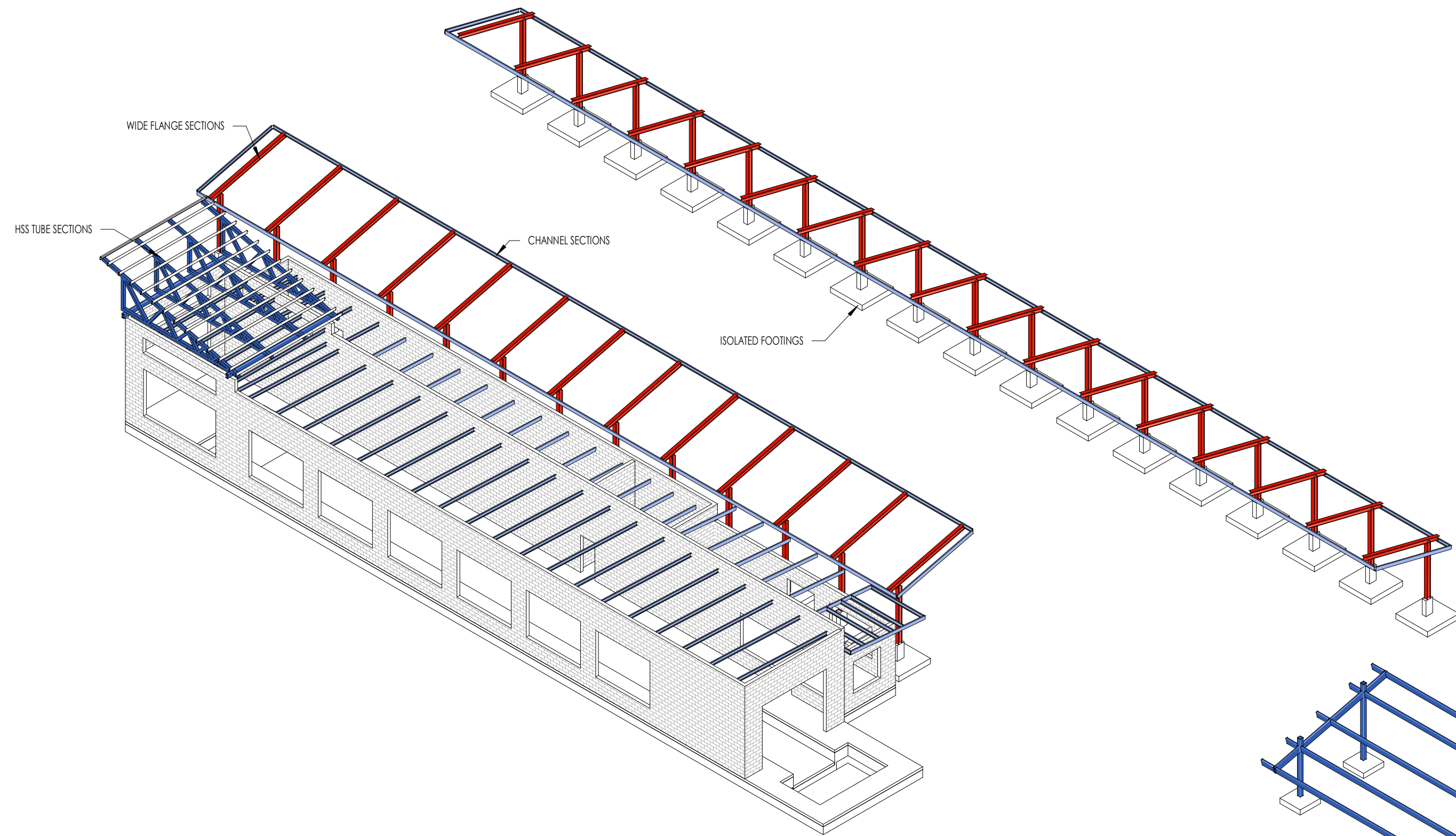
3/24/2023



PM: C.R DE: G.S.

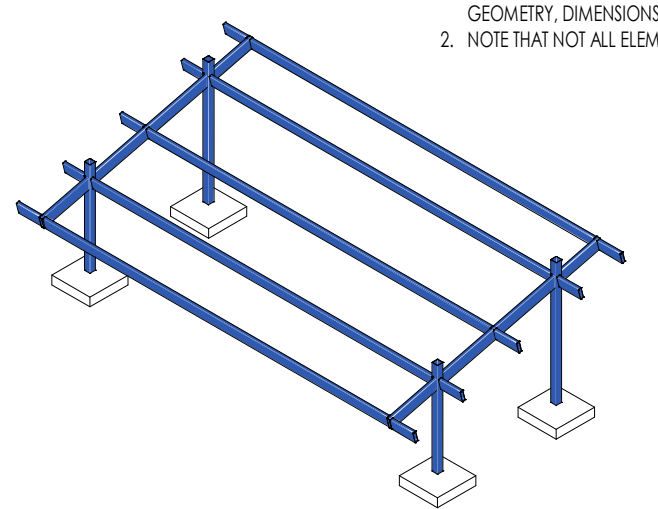
PROJECT:
 22-00439

SHEET:
S0.1
 STATEMENT OF
 SPECIAL
 INSPECTIONS

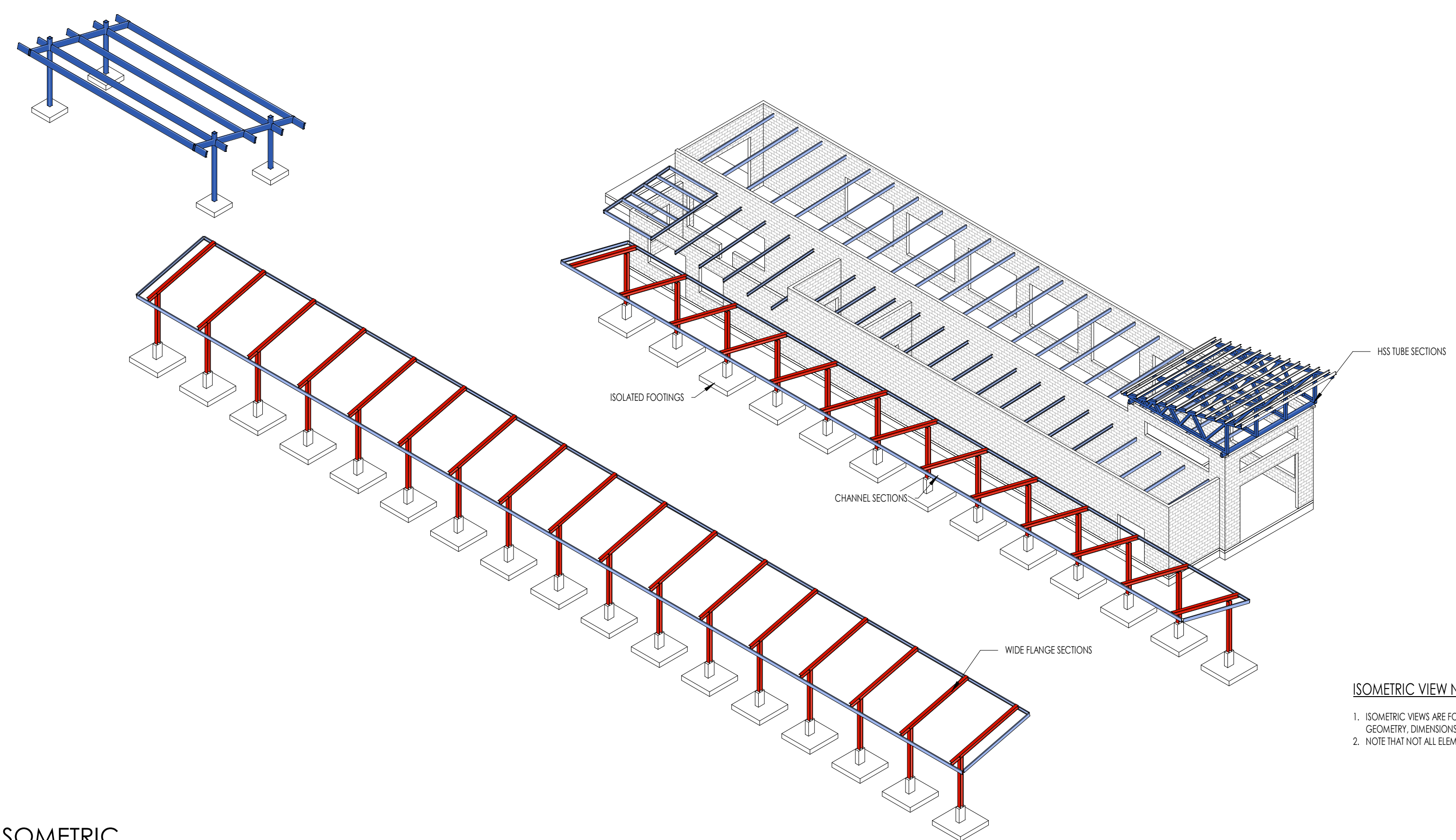


ISOMETRIC VIEW NOTES

1. ISOMETRIC VIEWS ARE FOR VISUAL REFERENCE ONLY. SEE PLANS, SECTIONS AND DETAIL FOR GEOMETRY, DIMENSIONS, MEMBERS, AND CONNECTION INFORMATION.
2. NOTE THAT NOT ALL ELEMENTS ARE SHOWN IN ISOMETRIC VIEWS.



1 ISOMETRIC

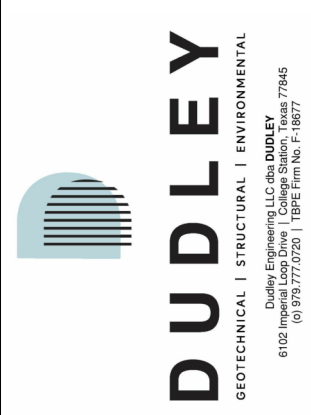


ISOMETRIC VIEW NOTES

1. ISOMETRIC VIEWS ARE FOR VISUAL REFERENCE ONLY. SEE PLANS, SECTIONS AND DETAIL FOR GEOMETRY, DIMENSIONS, MEMBERS, AND CONNECTION INFORMATION.
2. NOTE THAT NOT ALL ELEMENTS ARE SHOWN IN ISOMETRIC VIEWS.

2 ISOMETRIC

REVISIONS:	ISSUED FOR PERMIT
9/30/2022	

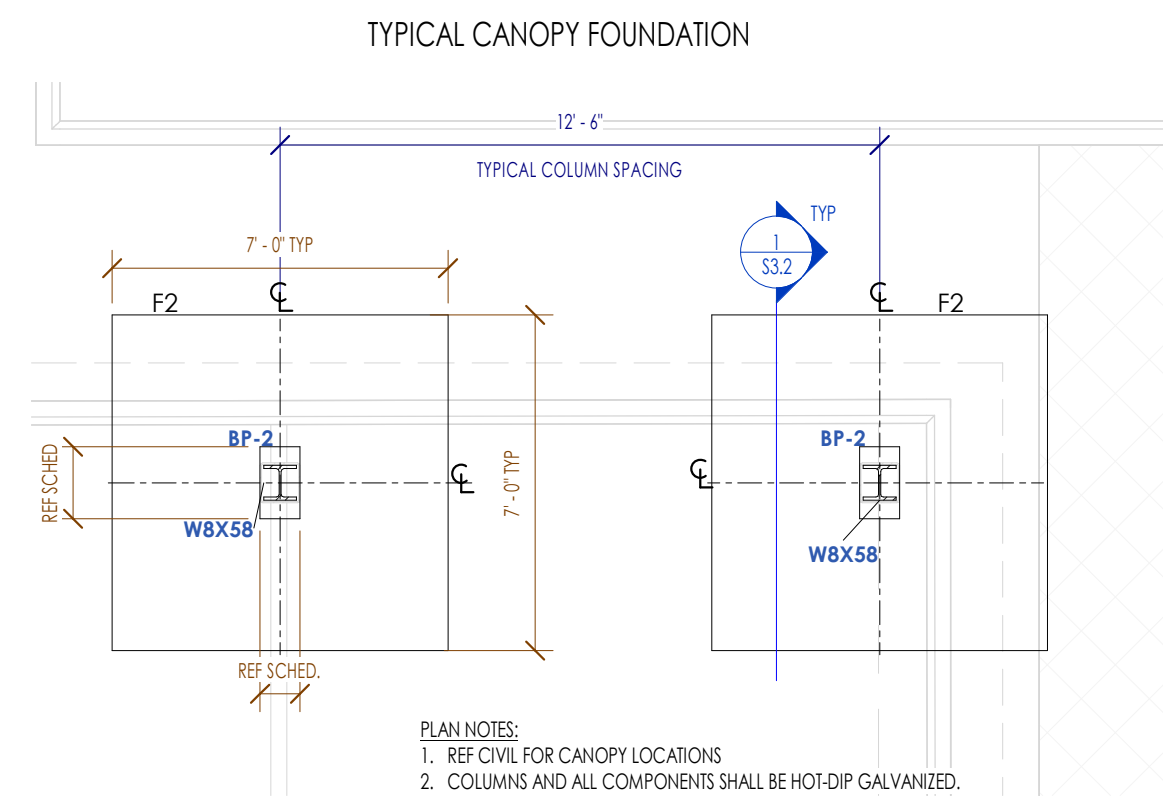


SUDS DELUXE CAR WASH

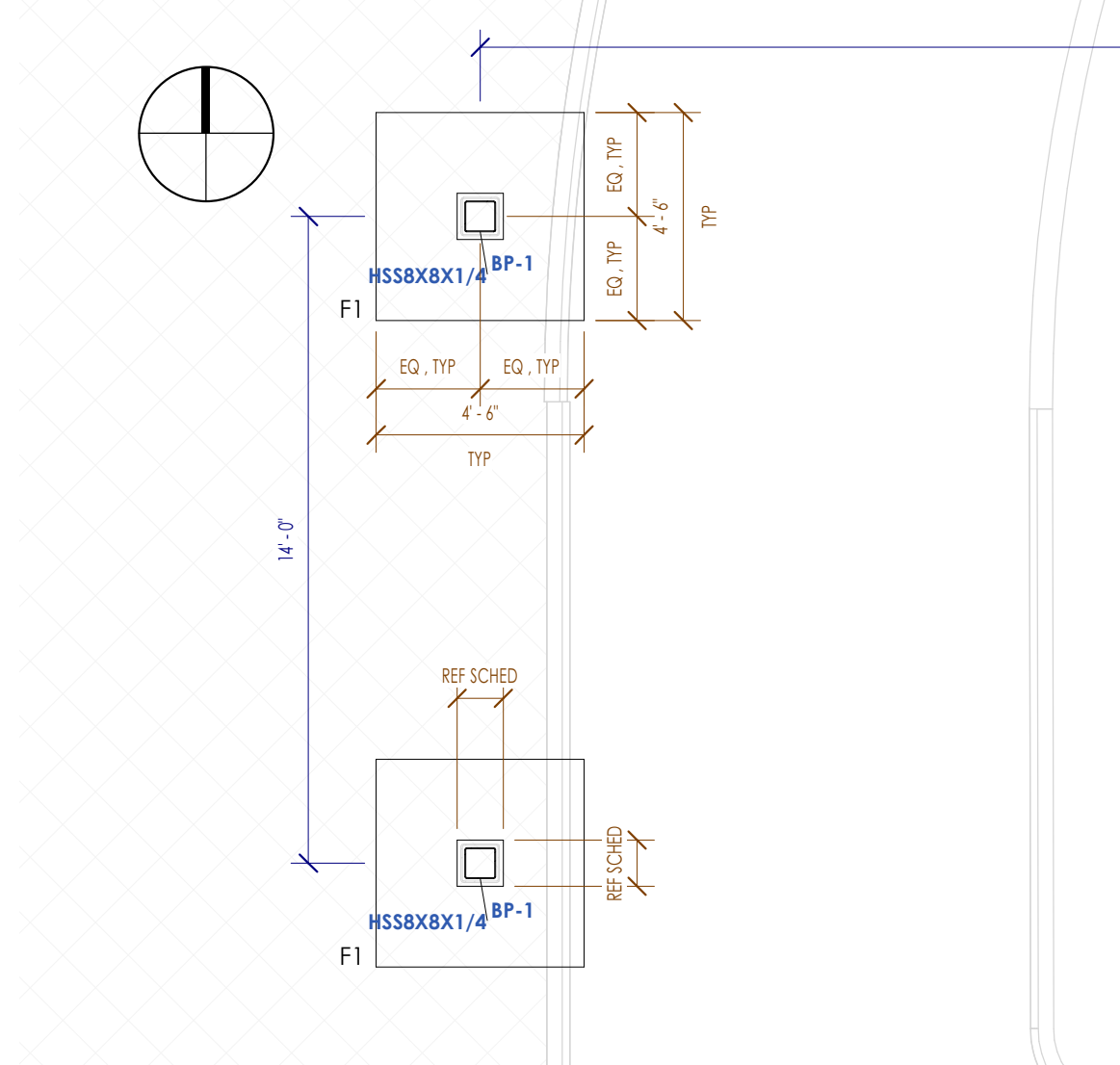
PM: C.R DE: G.S.

PROJECT:
22-00439

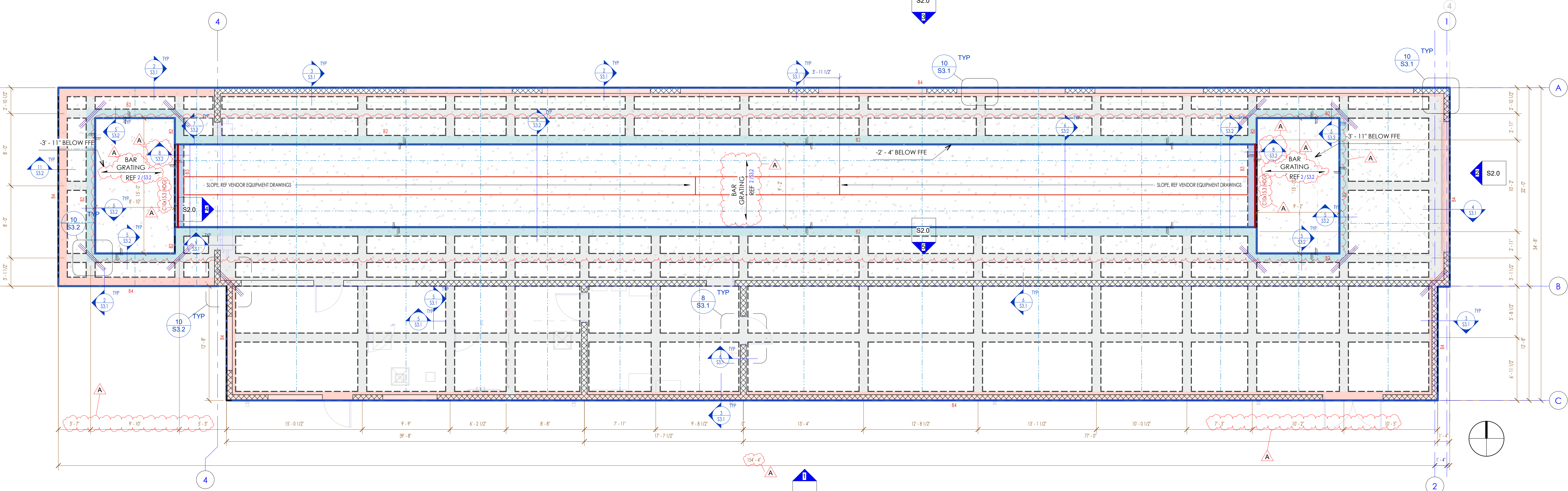
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ISOMETRICS

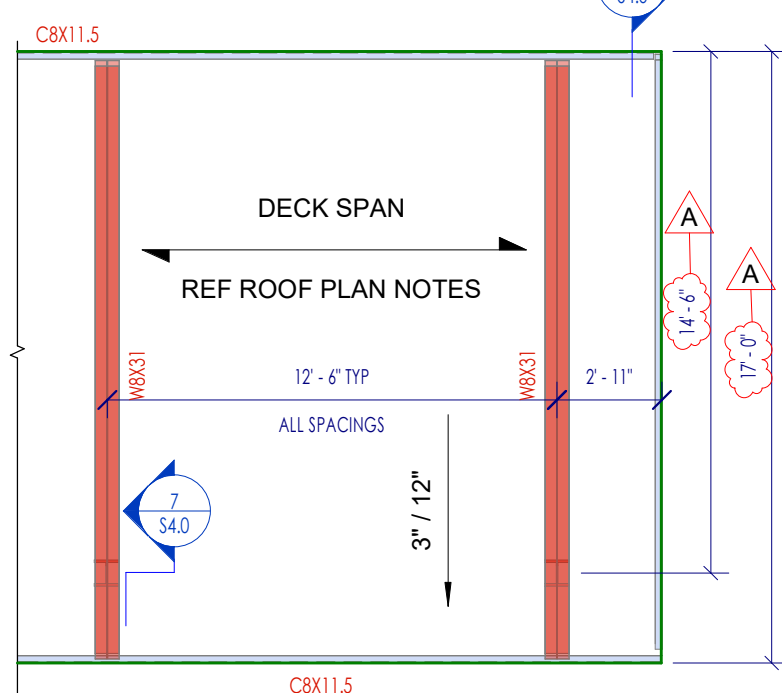


2 TYPICAL CANOPY FOUNDATION PLAN
1/4" = 1'-0"

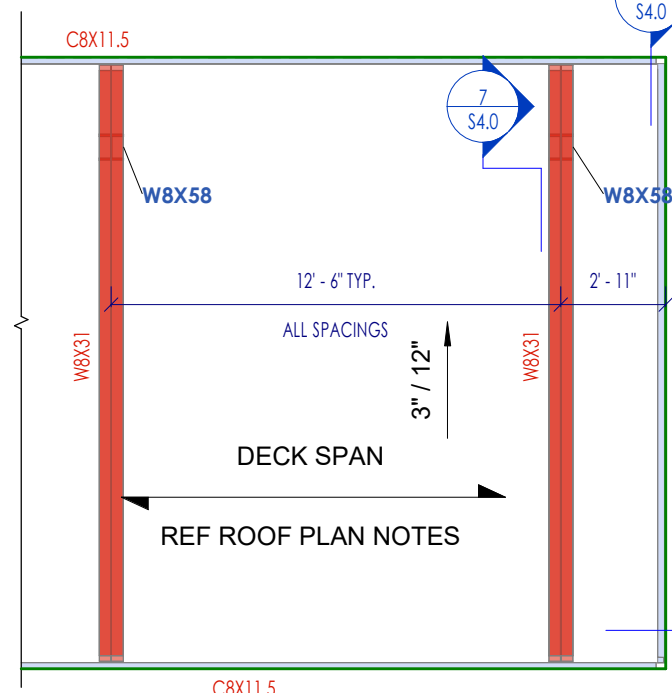


3 PAY STATION FOUNDATION PLAN
1/4" = 1'-0"





2 SOUTH CANOPY FRAMING PLAN
3/16" = 1'-0"

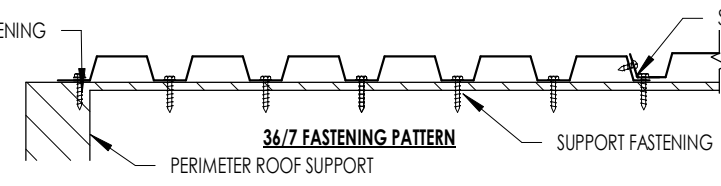


3 NORTH CANOPY FRAMING PLAN
3/16" = 1'-0"

NOTES:
1. ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED
2. T.O.S. = TOP OF STEEL

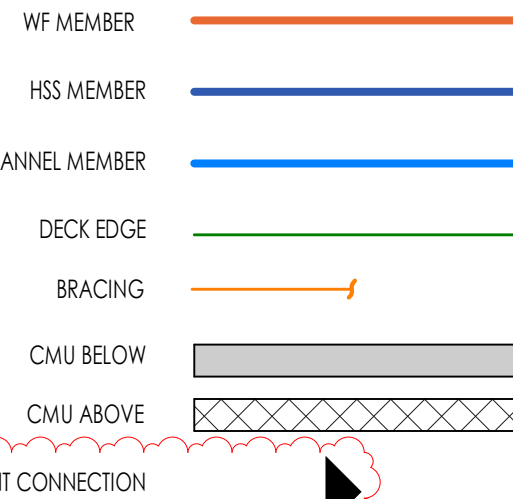
VACUUM CANOPY ROOF DECK NOTES

- DECK TYPE: 1 1/2" TYPE B (GRADE 80)
- GAGE: 18
- GALVANIZATION: G40
- SHOP PRIMER (TOP/BOTTOM): NONE/NONE
- MINIMUM FASTENER SPACING:
 - AT INTERMEDIATE SUPPORTS - SEE SCHEDULE
 - FASTEN SIDE LAPS AT 12" OC
 - FASTEN PERIMETER EDGES OF DECK AT 6" OC WHERE DECK IS PARALLEL TO SUPPORT MEMBER AND AT 3/4" WHEN PERPENDICULAR.
- FASTENERS:
 - AT SUPPORTS:
 - HILLI X-HS24 FOR FASTENING DECK TO BAR JOIST
 - HILLI X-EN-19 FOR FASTENING DECK TO STRUCTURAL STEEL
 - 5/8" ARC SPOT WELD (PUDDLE WELD)
 - AS SCHEDULE
 - #12 HSW SCREW
- MINIMUM EDGE DISTANCE:
 - ARC SPOT (PUDDLE) WELDS IS 3/4"
 - SCREWS AND PAF'S IS 1/2"
 - END LAPS TO OCCUR AT SUPPORTS ONLY
 - MINIMUM LAP IS 3"
 - THE ROOF DECK SHALL BE PLACED AS INDICATED ON PLAN WITH TWO SPAN MINIMUM UNO.



LOCATION	PATTERN
INTERIOR	3/7
EDGE	3/7
CORNER	3/7

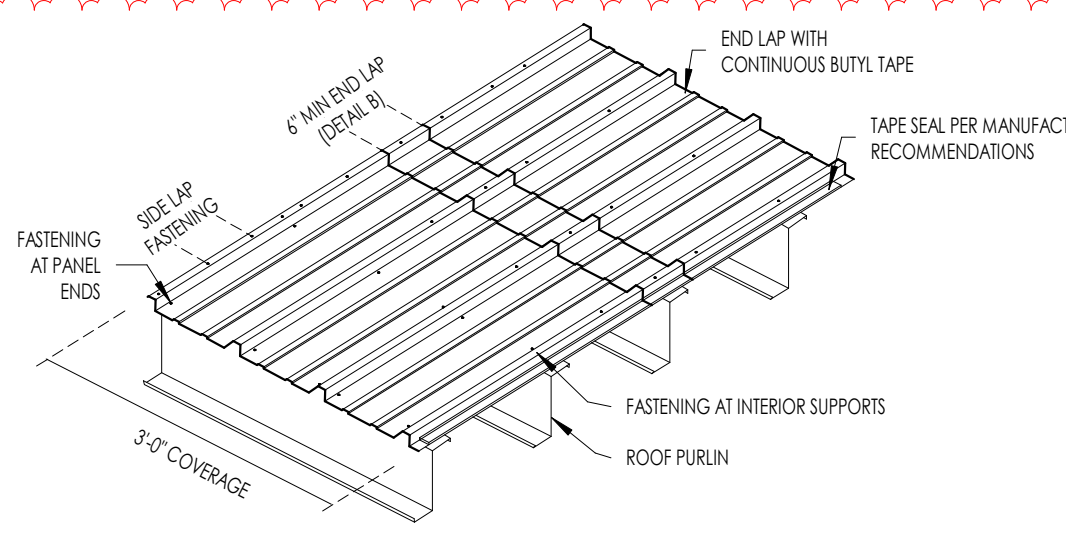
ROOF PLAN LEGEND



ROOF DECK NOTES

- DECK TYPE: 1 1/2" TYPE B (GRADE 80)
- GAGE: G40
- GALVANIZATION: G40
- SHOP PRIMER (TOP/BOTTOM): NONE/NONE
- MINIMUM FASTENER SPACING:
 - AT INTERMEDIATE SUPPORTS - SEE SCHEDULE
 - FASTEN SIDE LAPS AT 12" OC
 - FASTEN PERIMETER EDGES OF DECK AT 6" OC WHERE DECK IS PARALLEL TO SUPPORT MEMBER AND AT 3/4" WHEN PERPENDICULAR.
- FASTENERS:
 - AT SUPPORTS:
 - HILLI X-HS24 FOR FASTENING DECK TO BAR JOIST
 - HILLI X-EN-19 FOR FASTENING DECK TO STRUCTURAL STEEL
 - 5/8" ARC SPOT WELD (PUDDLE WELD)
 - AT SIDELAP:
 - #12 HSW SCREW
 - MINIMUM EDGE DISTANCE:
 - ARC SPOT (PUDDLE) WELDS IS 3/4"
 - SCREWS AND PAF'S IS 1/2"
 - END LAPS TO OCCUR AT SUPPORTS ONLY
 - MINIMUM LAP IS 3"

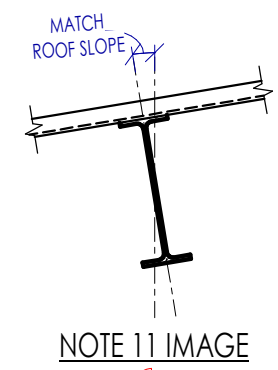
LOCATION	PATTERN
INTERIOR	3/5
EDGE	3/5
CORNER	3/7



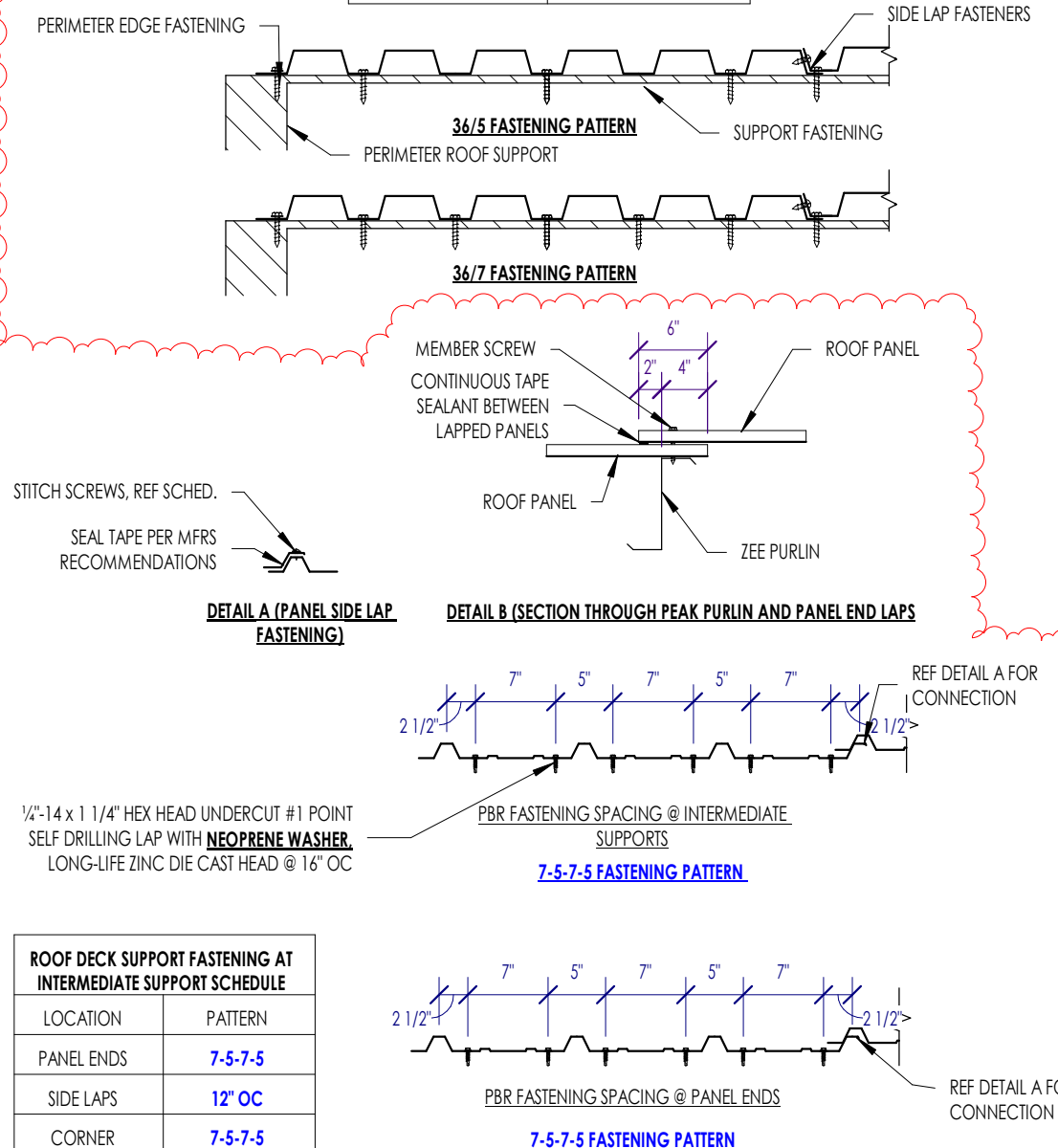
TYPICAL PANEL INSTALLATION OVER ROOF PURLINS (FOR PRB ROOF DECK)

HIGH ROOF PLAN NOTES

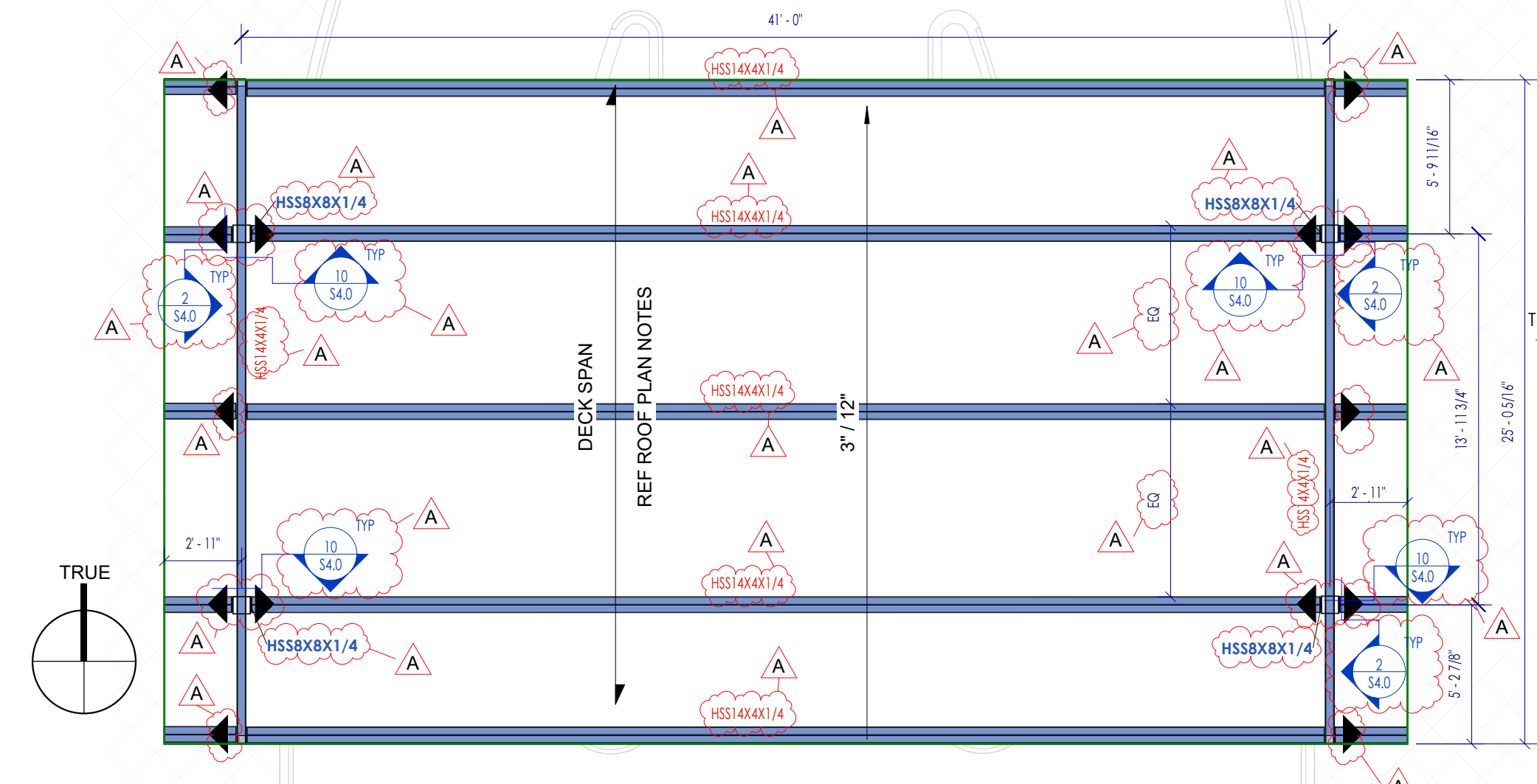
- DECK TYPE: PRB (PANEL?)
- GAGE: GALVALUME PLUS
- COATING: GALVALUME PLUS
- SHOP PRIMER (TOP/BOTTOM): NONE/NONE
- MINIMUM FASTENER SPACING:
 - AT INTERMEDIATE SUPPORTS - SEE SCHEDULE
 - FASTEN SIDE & END LAPS AT 12" OC
 - FASTEN PERIMETER EDGES OF DECK AT 6" OC WHERE DECK IS PARALLEL TO SUPPORT MEMBER AND AT 7-5-7-5 WHEN PERPENDICULAR.
- FASTENERS:
 - SUPPORTS:
 - #14x7/8 LONG GALVANIZED HEX HEAD SELF DRILLING LAP WITH 5/8" SEALING WASHER - LONG-LIFE ZINC DIE CAST HEAD
 - #12-14x1 1/4" LONG GALVANIZED HEX HEAD SELF-DRILLING SCREWS WITH A 9/16" SEALING WASHER
 - #12-14x1 1/4" LONG #4 POINT GALVANIZED HEX HEAD SELF-DRILLING SCREWS WITH A 9/16" SEALING WASHER
 - MINIMUM EDGE DISTANCE:
 - SCREWS AND PAF'S IS 1/2"
 - END LAPS TO OCCUR AT SUPPORTS ONLY
 - MINIMUM LAP IS 6"
 - THE ROOF DECK SHALL BE PLACED AS INDICATED ON PLAN WITH THREE SPAN MINIMUM UNO.
 - SEALANT IS REQUIRED ON PANEL SIDE LAPS FOR ROOF SLOPES LESS THAN 3:12
 - STEEL ROOF SUPPORT MEMBERS SPANNING PERPENDICULAR TO THE ROOF SLOPE SHALL BE ROTATED ABOUT THEIR LONGITUDINAL AXIS TO MATCH THE ROOF SLOPE
 - PRE-APPROVED MANUFACTURERS INCLUDE: ASSOCIATE STEEL GROUP, HORIZON STRUCTURAL SYSTEMS OR APPROVED EQUIVALENT.



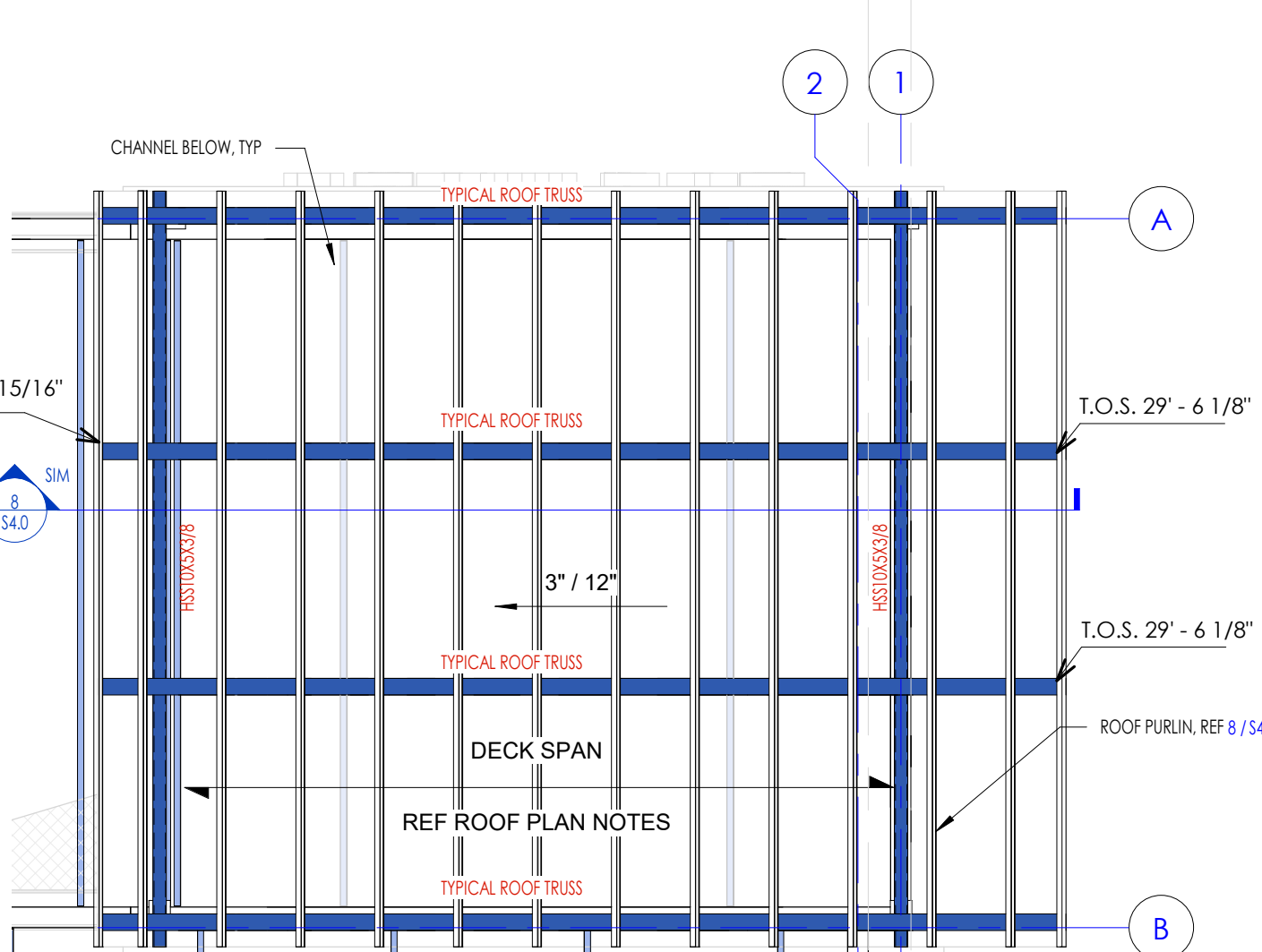
NOTE 11 IMAGE



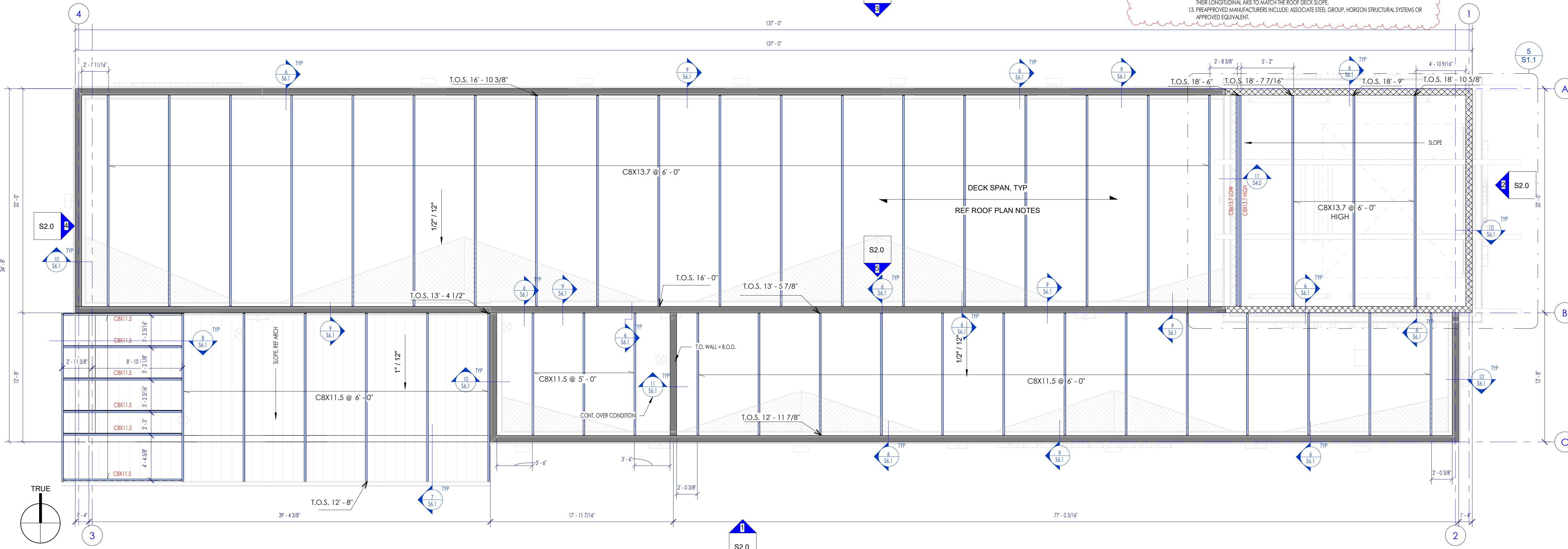
LOCATION	PATTERN
PANEL ENDS	7-5-7-5
SIDE LAPS	12" OC
CORNER	7-5-7-5



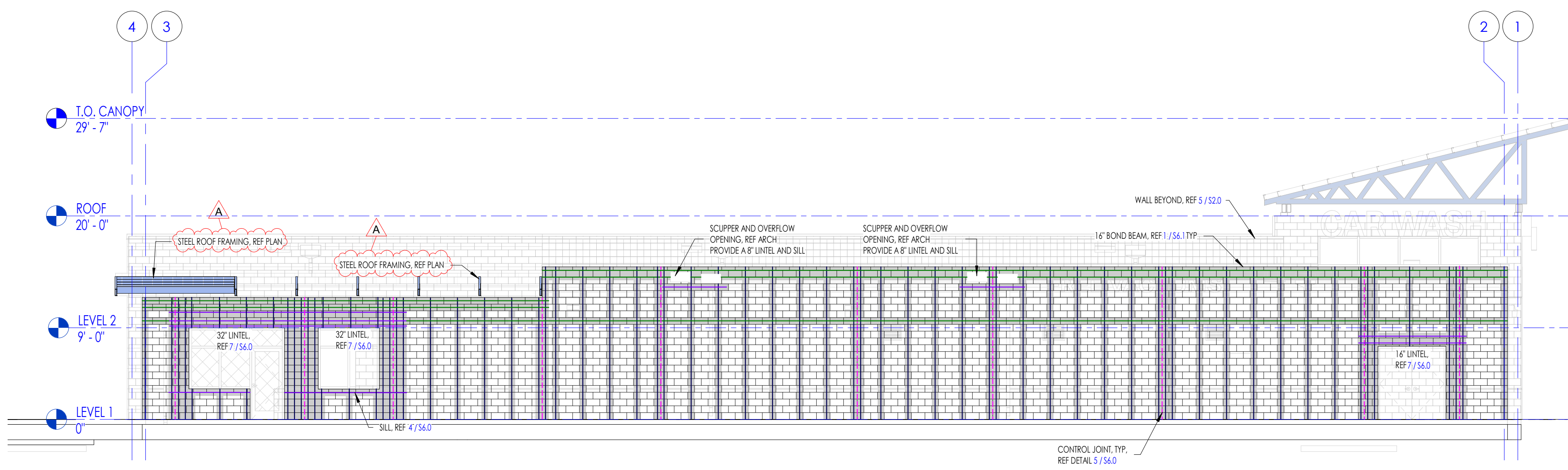
4 PAY-STATION ROOF PLAN
3/16" = 1'-0"



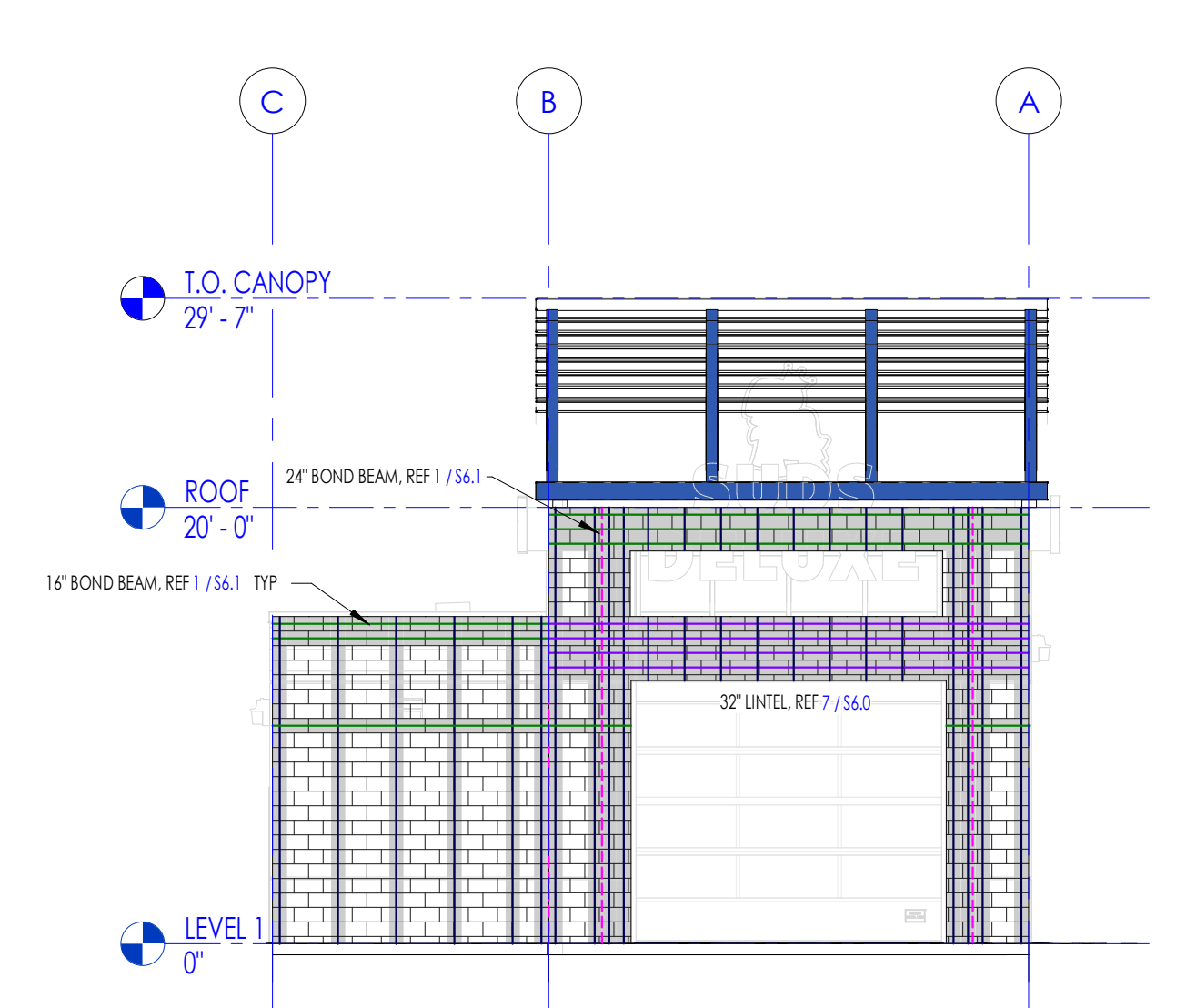
5 HIGH ROOF PLAN
3/16" = 1'-0"



1 ROOF FRAMING PLAN
3/16" = 1'-0"



1 SOUTH WALL ELEVATION
1/8" = 1'-0"



2 WEST WALL ELEVATION
1/8" = 1'-0"

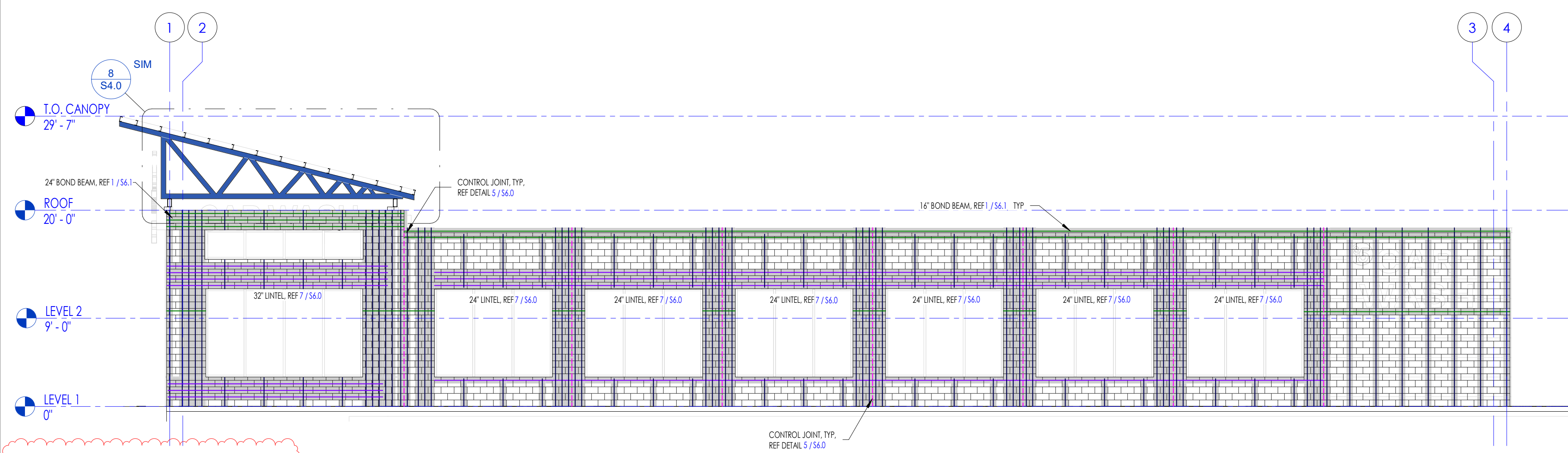
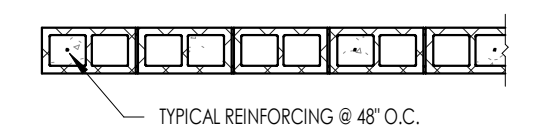
ELEVATION LEGEND

- HSS STEEL MEMBER
- CHANNEL STEEL MEMBER
- WIDE FLANGE STEEL MEMBER
- BOND BEAM
- TYPICAL VERTICAL/JAMB REINFORCEMENT
- LINTEL
- MASONRY SUPPORT ANGLE
- VERTICAL CONTROL JOINT, REF 5 / S6.0

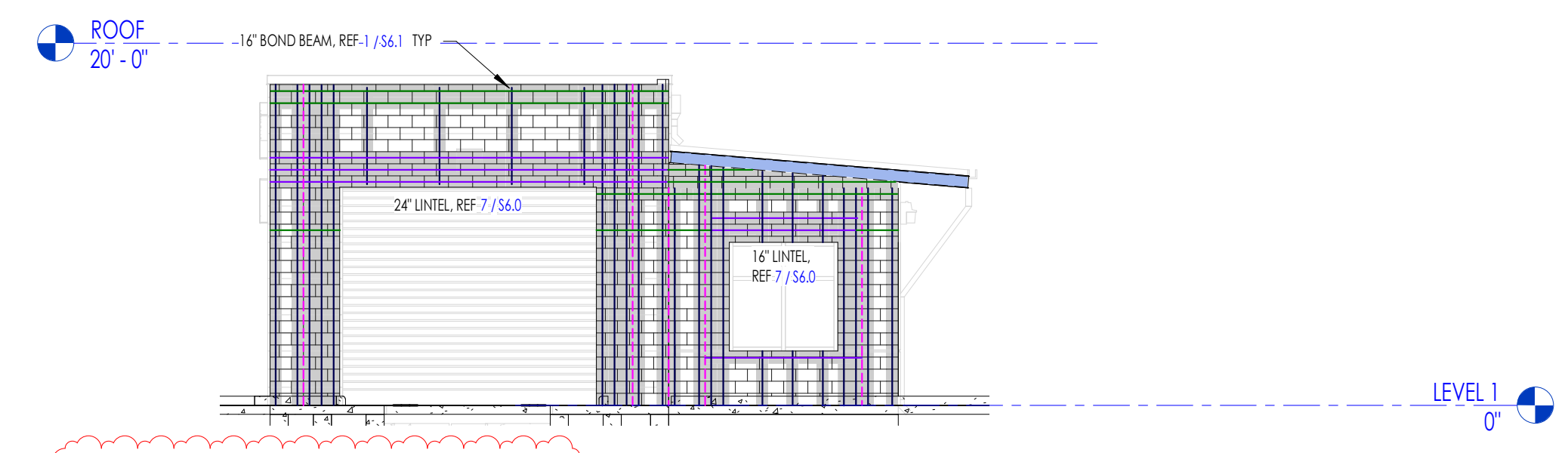
CMU REINFORCEMENT SCHEDULE

WALL ZONE	THICKNESS OF WALL	TYPICAL VERTICAL REBAR	HORIZONTAL REINFORCEMENT
A	8"	#4 BARS @ 48" O.C.	BOND BEAMS @ 10' O.C. MAX, REINFORCED WITH (2) #4

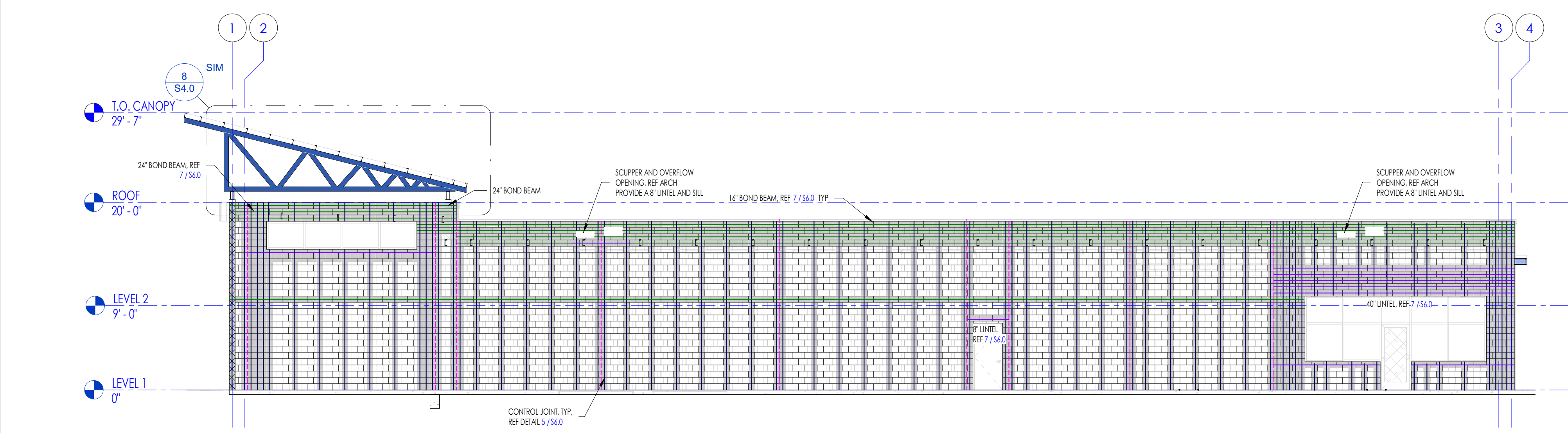
- NOTES:
- THE TYPICAL VERTICAL REINFORCING BAR SHALL BE PLACED PER THE SCHEDULE.
 - WALL SECTIONS NOT EXPLICITLY CALLED OUT WITH A WALL TYPE SHALL BE REINFORCED ACCORDING TO THE TYPE 'A' DESIGNATION.
 - REFER TO DETAIL 2 / S6.1 FOR TYPICAL BOND BEAM CORNER REINFORCEMENT ARRANGEMENT.
 - REFER TO DETAIL 2 / S6.1 FOR TYPICAL WALL CORNER REINFORCEMENT ARRANGEMENT.
 - HORIZONTAL SHEAR REINFORCEMENT AT OPENINGS SHALL BE TERMINATED WITH A 180° STD. HOOK, REF.



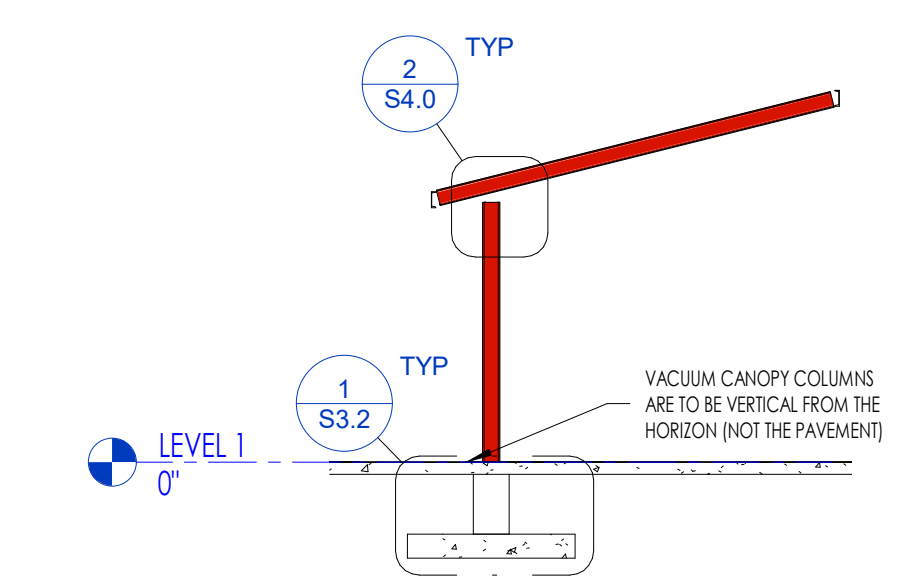
3 NORTH WALL ELEVATION
1/8" = 1'-0"



4 EAST WALL ELEVATION
1/8" = 1'-0"



5 INTERIOR SOUTH WALL ELEVATION
1/8" = 1'-0"



6 TYPICAL CANOPY FRAME
1/8" = 1'-0"

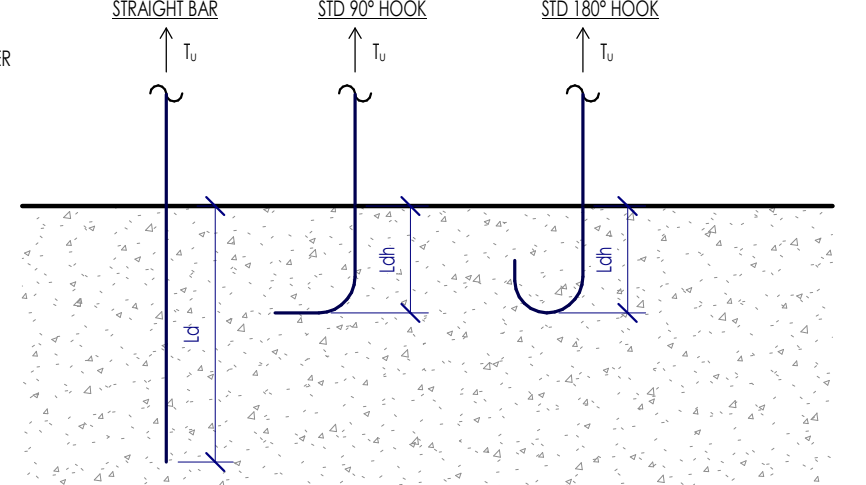
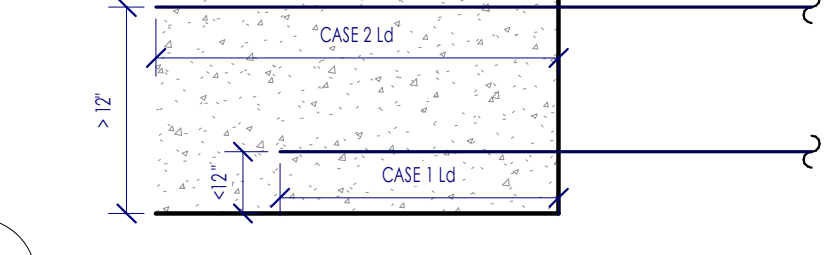
REVISIONS:

NO.	DATE	DESCRIPTION
1	10/30/2022	ISSUED FOR PERMIT
2	11/12/2023	IFC



CASE 1: DEVELOPMENT LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, Fc (PSI)					CASE 2: DEVELOPMENT LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, Fc (PSI)					DEVELOPMENT LENGTHS OF STANDARD HOOKS IN TENSION, Ldh (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, Fc (PSI)							
BAR SIZE	db (IN)	fc = 3,000	fc = 4,000	fc = 5,000	fc = 6,000	BAR SIZE	db (IN)	fc = 3,000	fc = 4,000	fc = 5,000	fc = 6,000	BAR SIZE	db (IN)	fc = 3,000	fc = 4,000	fc = 5,000	fc = 6,000
#3	0.375	16	14	13	12	#3	0.375	21	18	17	15	#3	0.375	9	8	7	6
#4	0.5	22	19	17	15	#4	0.5	28	25	22	20	#4	0.5	11	10	9	8
#5	0.625	27	24	21	19	#5	0.625	36	31	28	25	#5	0.625	14	12	11	10
#6	0.75	33	28	25	23	#6	0.75	43	37	33	30	#6	0.75	17	15	13	12
#7	0.875	48	42	37	34	#7	0.875	62	54	48	44	#7	0.875	20	17	15	14
#8	1.00	55	47	42	39	#8	1.00	71	62	55	50	#8	1.00	22	19	17	16
#9	1.128	62	54	48	44	#9	1.128	80	70	62	57	#9	1.128	25	22	20	18
#10	1.27	70	60	54	49	#10	1.27	90	78	70	64	#10	1.27	28	25	22	20
#11	1.41	77	67	60	55	#11	1.41	100	87	78	71	#11	1.41	31	27	24	22

- NOTES:
 1. CASE 1 APPLIES TO REINFORCEMENT THAT HAS LESS THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. ALL VERTICAL REINFORCEMENT FALLS UNDER CASE 1.
 2. CASE 2 APPLIES TO REINFORCEMENT THAT HAS MORE THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT.
 3. CLEAR SPACING OF BARS BEING DEVELOPED MUST BE AT LEAST:
 4. 2db (DIA OF BAR) & CLEAR COVER AT LEAST db, INCREASE DEVELOPMENT LENGTH BY 1.5 IF OTHERWISE.
 5. FOR EPOXY COATED REINFORCEMENT INCREASE THE LENGTH BY A FACTOR OF 1.2.



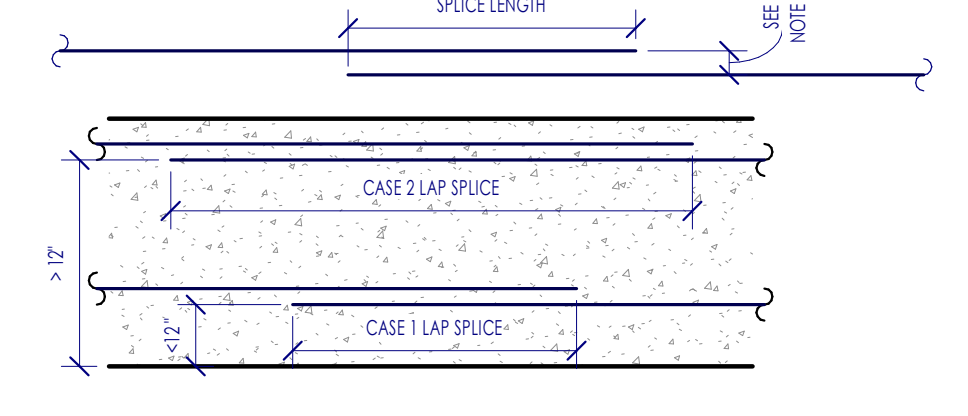
- NOTES:
 1. THE HOOK SHALL BE LOCATED WITHIN THE CONFINED CORE OF A COLUMN OR BOUNDARY ELEMENT, WITH THE HOOK BENT INTO THE JOINT.
 2. THE DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY A FACTOR OF 1.2 FOR EPOXY-COATED REINFORCING BARS.

DEVELOPMENT LENGTH, Ld IS THE BONDED LENGTH REQUIRED TO ACHIEVE THE DESIGN STRENGTH OF A BAR (TO PRECLUDE THE BAR FROM SLIPPING OUT OF THE CONCRETE)

1 TENSION DEVELOPMENT LENGTH
NOT TO SCALE

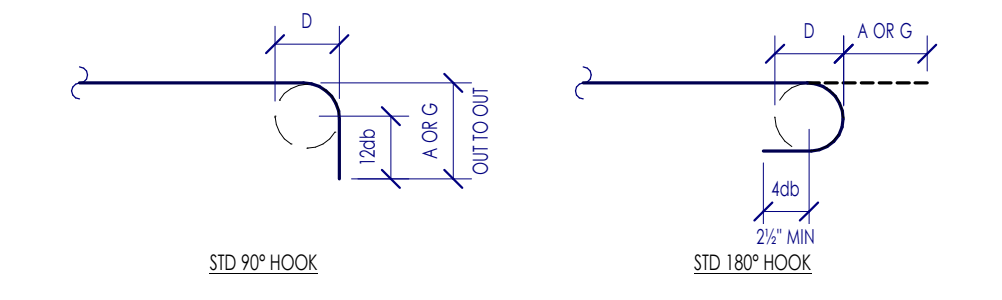
CASE 1: CLASS 8 SPLICE LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, Fc (PSI)					CASE 2: CLASS 8 SPLICE LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, Fc (PSI)						
BAR SIZE	db (IN)	fc = 3,000	fc = 4,000	fc = 5,000	fc = 6,000	BAR SIZE	db (IN)	fc = 3,000	fc = 4,000	fc = 5,000	fc = 6,000
#3	0.375	21	18	17	15	#3	0.375	28	24	22	20
#4	0.5	28	25	22	20	#4	0.5	37	32	29	26
#5	0.625	36	31	28	25	#5	0.625	46	40	36	33
#6	0.75	43	37	33	30	#6	0.75	56	48	43	39
#7	0.875	62	54	48	44	#7	0.875	81	70	63	57
#8	1.00	71	62	55	50	#8	1.00	93	80	72	65
#9	1.128	80	70	62	57	#9	1.128	104	90	81	74
#10	1.27	90	78	70	64	#10	1.27	118	102	91	83
#11	1.41	100	87	78	71	#11	1.41	131	113	101	92

- NOTES:
 1. CASE 1 APPLIES TO REINFORCEMENT THAT HAS LESS THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. ALL VERTICAL REINFORCEMENT FALLS UNDER CASE 1.
 2. CASE 2 APPLIES TO REINFORCEMENT THAT HAS MORE THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT.
 3. CLEAR SPACING OF BARS BEING DEVELOPED MUST BE AT LEAST 2db (DIA OF BAR) & CLEAR COVER AT LEAST db, INCREASE DEVELOPMENT LENGTH BY 1.5 IF OTHERWISE.
 4. FOR EPOXY COATED REINFORCEMENT INCREASE THE LENGTH BY A FACTOR OF 1.2.
 5. ADJACENT BARS THAT ARE TO BE SPLICED SHALL BE IN CONTACT AND TIED TOGETHER WHERE POSSIBLE. WHERE CONTACT IS NOT POSSIBLE, THE MAXIMUM OFFSET SHALL BE ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH OR e_c , WHICHEVER IS LESS.

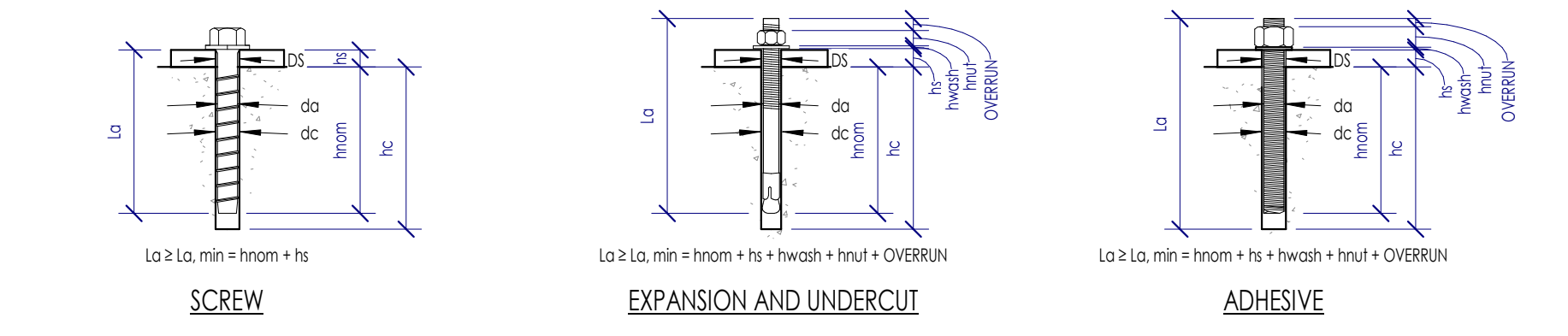


3 TENSION LAP SPLICE LENGTH
NOT TO SCALE

BAR SIZE	D	STANDARD END HOOK DIMENSIONS (IN)		
		180° HOOKS	90° HOOKS	
		A or G	J	A or G
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	12
#7	5 1/4	10	7	14
#8	6	11	8	16
#9	9 1/2	15	11 3/4	19
#10	10 3/4	17	13 1/4	22
#11	12	19	14 3/4	24

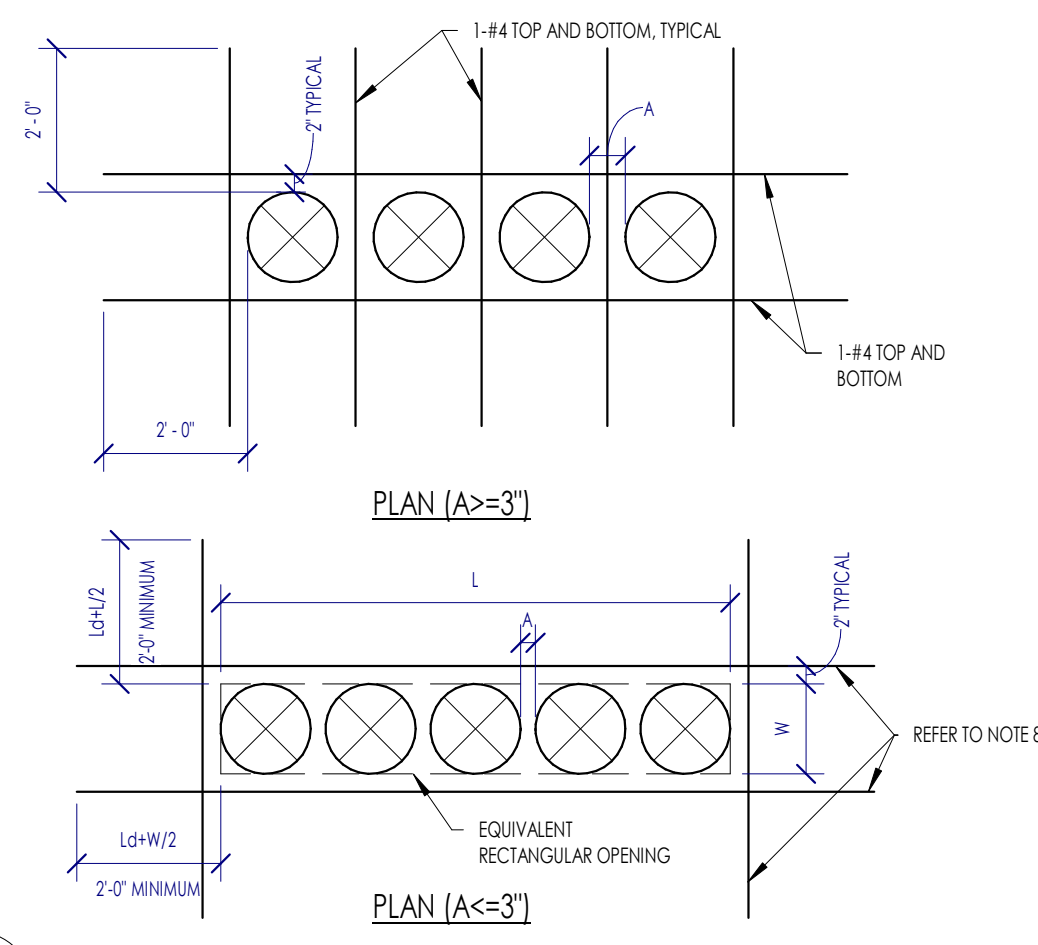


5 STANDARD END HOOK DIMENSIONS
NOT TO SCALE



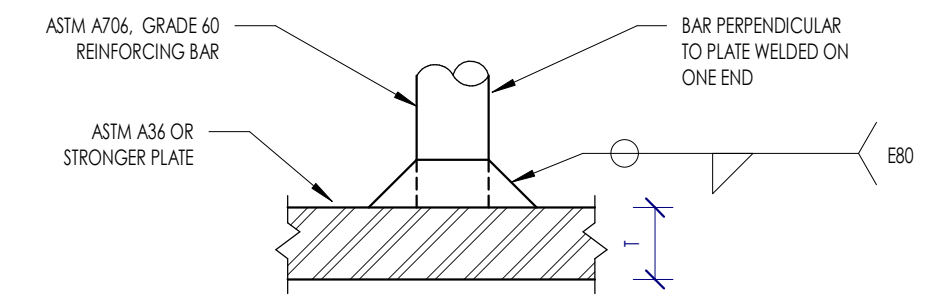
- CONTRACTOR AND INSTALLER NOTES:
 1. ONLY POST-INSTALLED ANCHOR PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE USED WHERE SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS TO THE ENGINEER OF RECORD (EOR) FOR ANCHOR PRODUCTS SUBSTITUTED FOR THOSE INDICATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EOR PRIOR TO USING POST-INSTALLED ANCHORS.
 2. ANCHOR LENGTHS SPECIFIED IN THE CONTRACT DOCUMENTS INDICATE THE NOMINAL EMBEDMENT DEPTH. REFER TO THE ANCHOR TYPE FOR THE DEFINITION OF NOMINAL EMBEDMENT DEPTH. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE CORRECT ANCHOR LENGTH Ld FOR ORDER BASED ON THE SPECIFIED NOMINAL EMBEDMENT DEPTH, ATTACHMENT THICKNESS AND OTHER ANCHOR CHARACTERISTICS NOTED.
 3. MINIMUM ANCHOR LENGTH (Lomin) IS DETERMINED AS SHOWN FOR EACH ANCHOR. ORDER AND INSTALL AN ANCHOR LENGTH EQUAL TO OR GREATER THAN THIS VALUE. INSTALLED ANCHOR LENGTHS SHALL NOT HAVE NOMINAL EMBEDMENT DEPTHS THAT EXCEED THEIR CORRESPONDING MINIMUM CONCRETE THICKNESS LIMITS. REFER TO ANCHOR'S CCC-ES EVALUATION SERVICE REPORT (ESR).
 4. REFER TO THE ANCHOR'S CCC-ES EVALUATION SERVICE REPORT (ESR) FOR DRILL BIT TYPE AND DIAMETER, AND DEPTH OF HOLE TO BE DRILLED IN THE CONCRETE.
 5. FOLLOW THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPI).
- DEFINITIONS:
 da = DIAMETER OF ANCHOR (IN)
 dc = DIAMETER OF HOLE IN CONCRETE = DIAMETER OF DRILL BIT (IN)
 dc = DIAMETER OF HOLE IN STEEL ATTACHMENT (IN)
 Lomin = MINIMUM LENGTH OF ANCHOR (IN)
 La = ORDERED LENGTH OF ANCHOR (IN)
 hnom = NOMINAL EMBEDMENT DEPTH (IN)
 hc = DEPTH OF HOLE IN CONCRETE (IN)
 ts = THICKNESS OF STEEL ATTACHMENT (IN)
 hwash = THICKNESS OF WASHER (IN)
 hnut = HEIGHT OF HEX NUT (IN)
 OVERRUN = 1/4" UNLESS NOTED OTHERWISE

6 TYPICAL POST-INSTALLED ANCHOR INFORMATION
NOT TO SCALE



- NOTES:
 1. WHERE CLEAR SPACING BETWEEN ADJACENT SLEEVES IS LESS THAN 3', THE SLEEVE GROUP SHALL BE TREATED AS AN EQUIVALENT RECTANGULAR OPENING WITH LENGTH 'L' AND WIDTH 'W' AS SHOWN.
 2. WHERE CLEAR SPACING BETWEEN ADJACENT SLEEVES IS GREATER THAN OR EQUAL TO 3', SCHEDULED SLAB BAR REINFORCEMENT SHALL BE OFFSET AS REQUIRED TO MISS SLEEVES.
 3. REINFORCEMENT SHOWN IS IN ADDITION TO SCHEDULED SLAB REINFORCEMENT.
 4. SCHEDULED SLAB MESH REINFORCEMENT MAY BE CUT AS REQUIRED TO MISS PIPE SLEEVES.
 5. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR LOCATION AND SIZE OF SLEEVES.
 6. ISOLATED PIPE SLEEVES THAT ARE SMALLER THAN 3" AND DO NOT INTERRUPT REINFORCEMENT DO NOT REQUIRE THE USE OF THIS DETAIL.
 7. THIS DETAIL SHOULD NOT BE USED FOR OPENING GROUPS WITH DIAMETERS LARGER THAN 12". CONSULT STRUCTURAL ENGINEER FOR FRAMING OF SUCH CONDITIONS.
 8. PROVIDE HALF OF INTERRUPTED REINFORCEMENT PLUS ONE ADDITIONAL BAR OF SAME SIZE ON EACH SIDE OF EQUIVALENT RECTANGULAR OPENING. PROVIDE A MINIMUM OF 1-#4 TOP AND BOTTOM EACH OF OPENING.

7 TYPICAL ADDITIONAL REINFORCEMENT AROUND PIPE SLEEVES
NOT TO SCALE

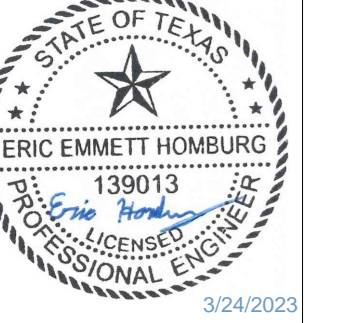


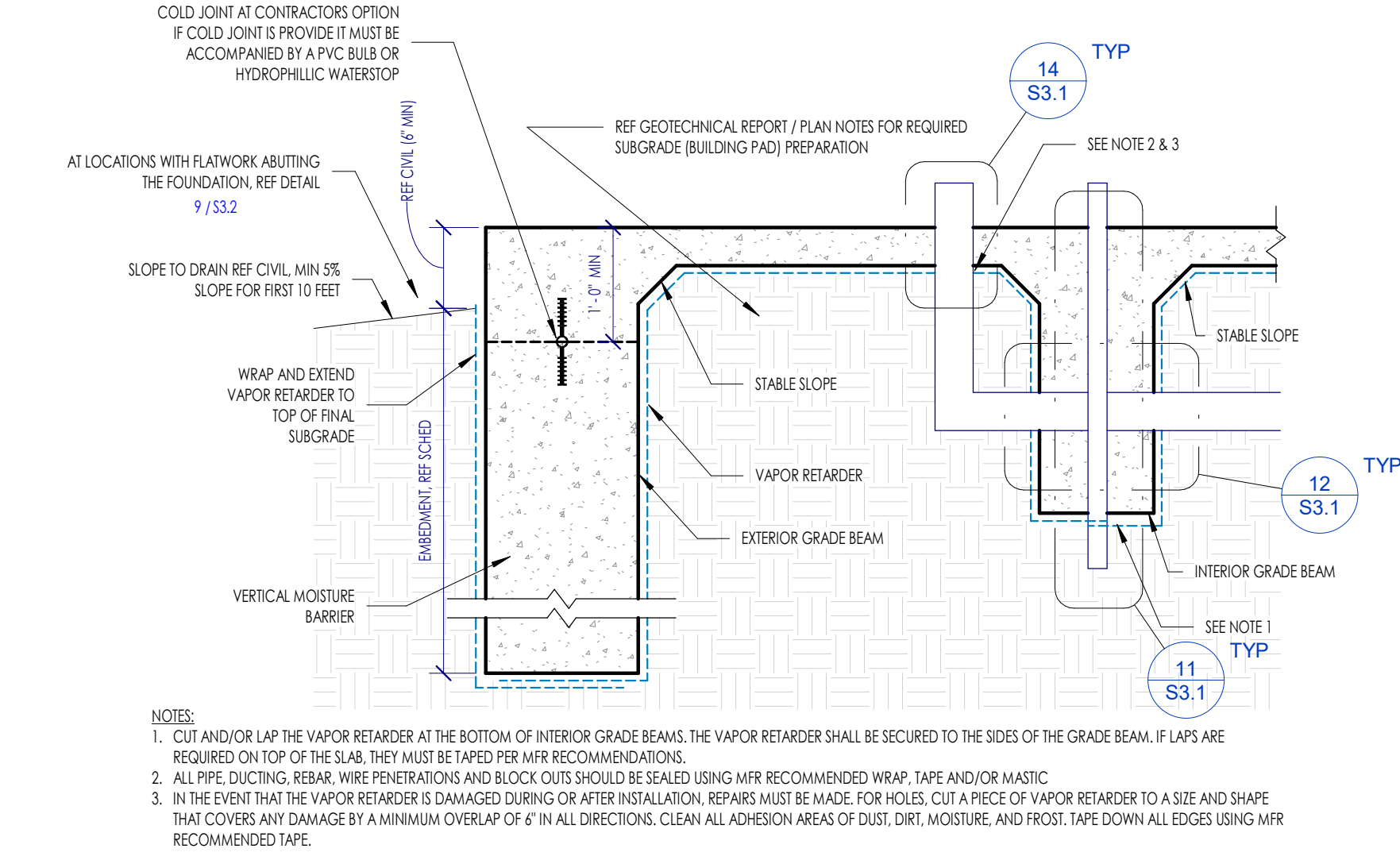
BAR SIZE	NOMINAL WELD SIZE (INCHES)	MINIMUM PLATE THICKNESS, T (INCHES)
#3	3/16	1/4
#4	1/4	1/4
#5	5/16	5/16
#6	5/16	7/16
#7	3/8	1/4
#8	7/16	1/4
#8	1/2	1/4
#10	9/16	1/4
#11	5/8	1/4

8 DEVELOPMENT OF WELDABLE REINFORCEMENT
NOT TO SCALE

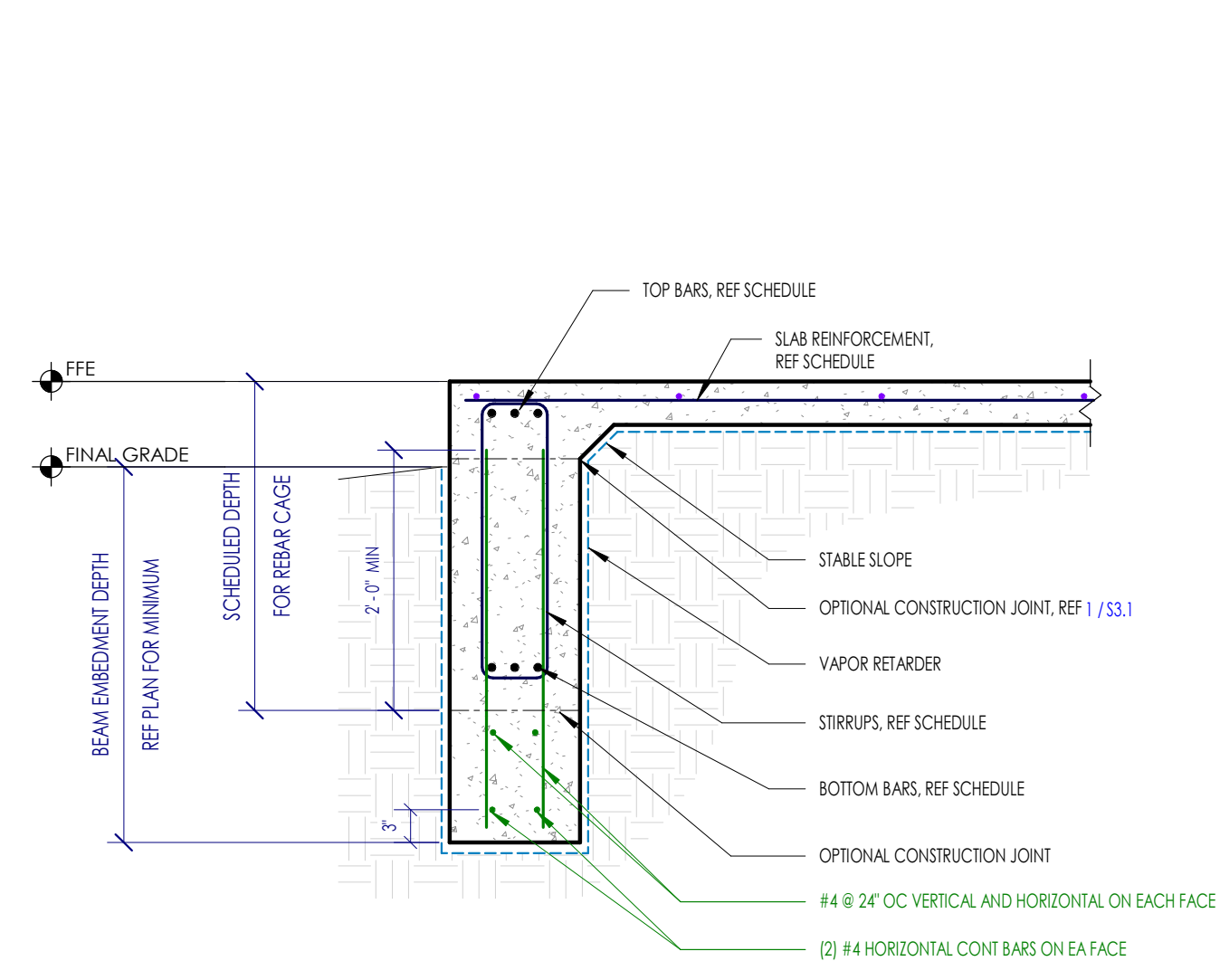
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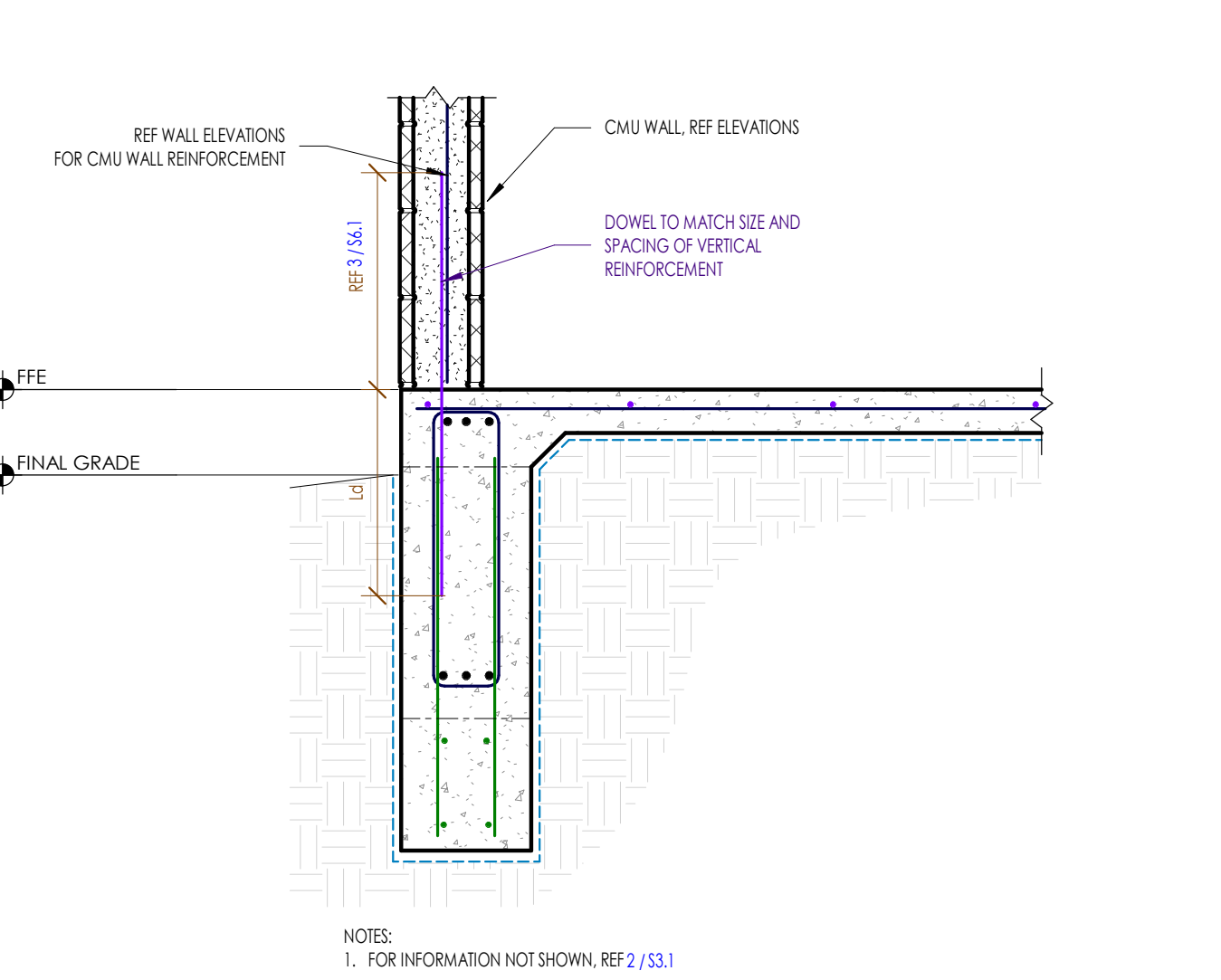




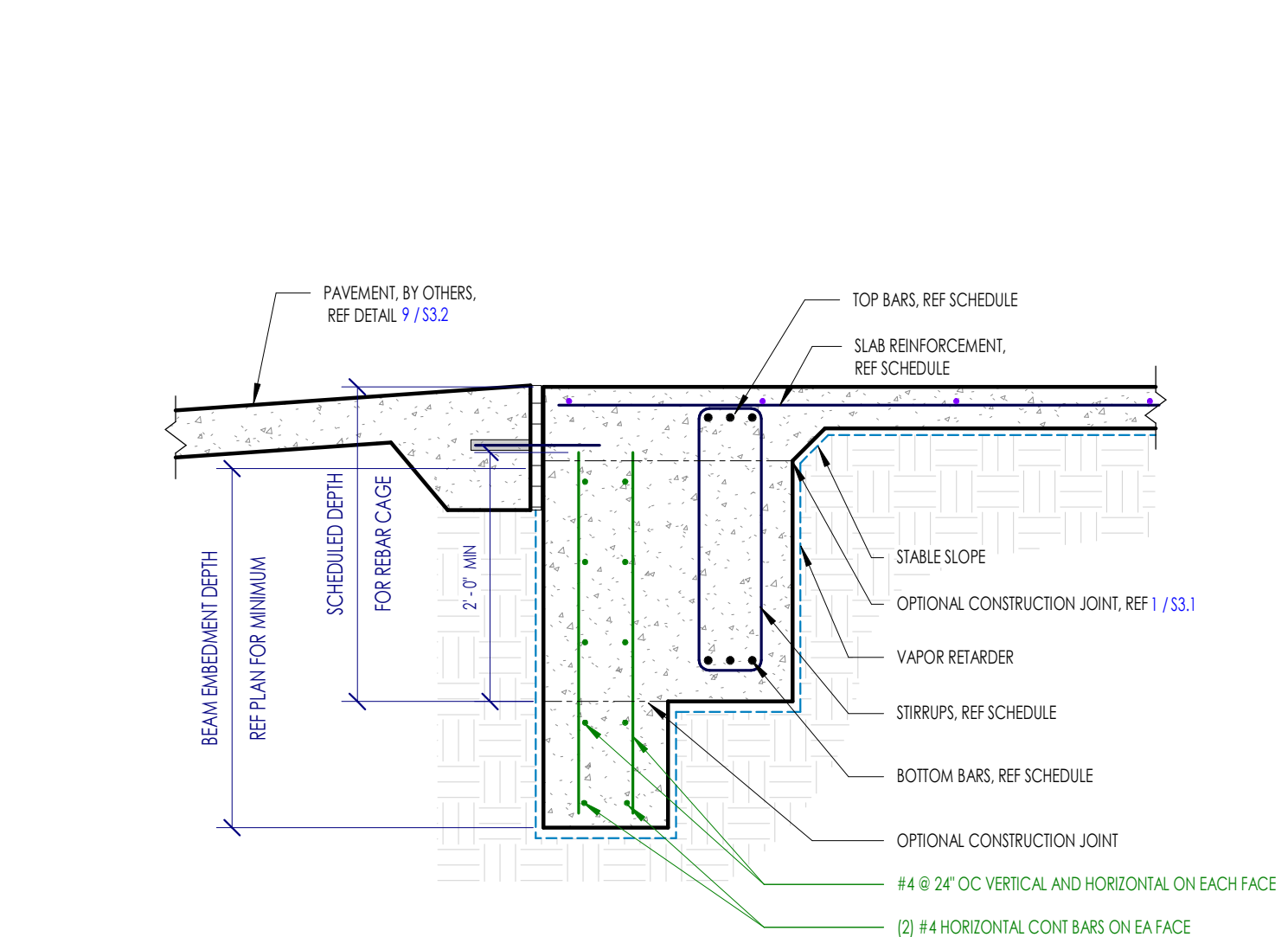
1 TYPICAL SUBGRADE AND VAPOR RETARDER PREPARATION
NOT TO SCALE



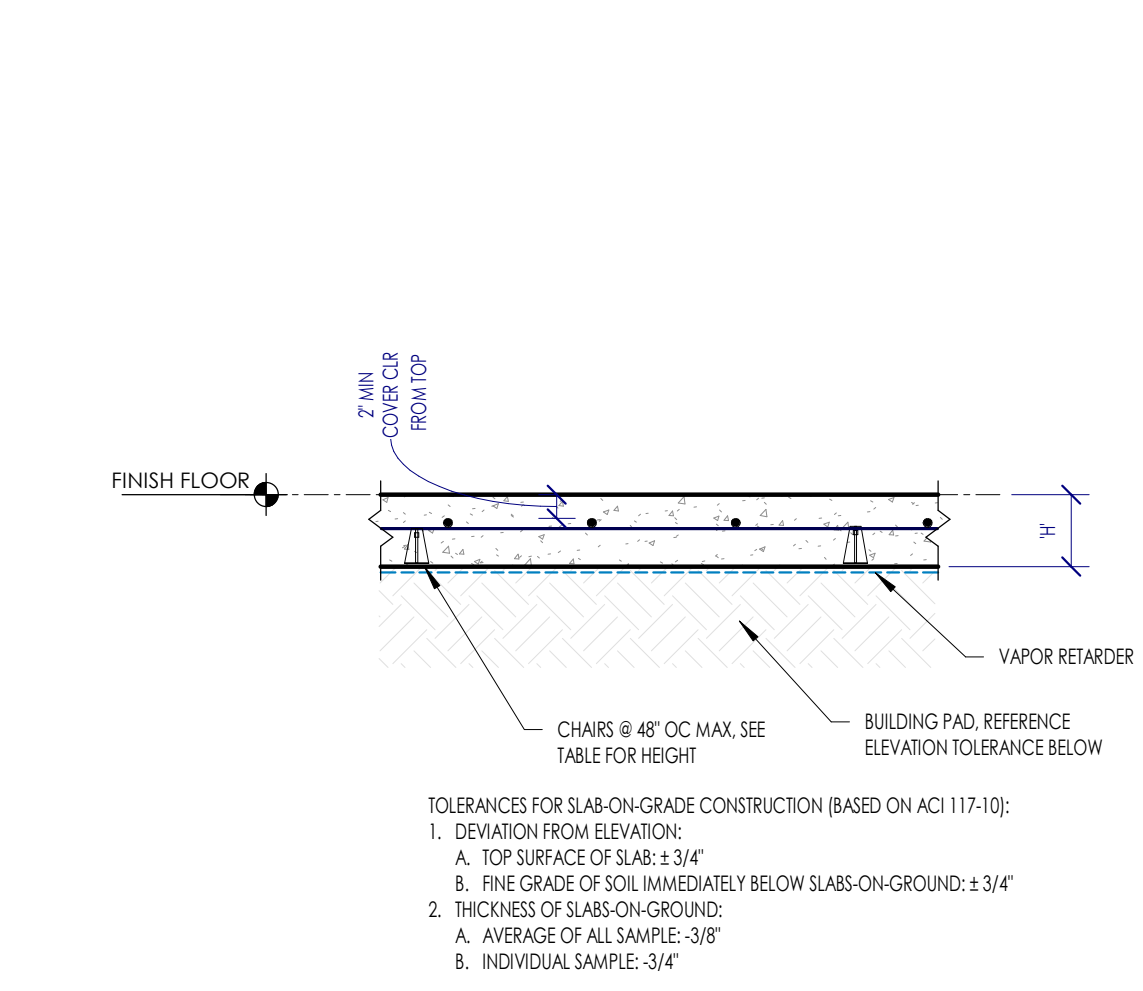
2 TYPICAL EXTERIOR GRADE BEAM-VERTICAL MOISTURE BARRIER
NOT TO SCALE



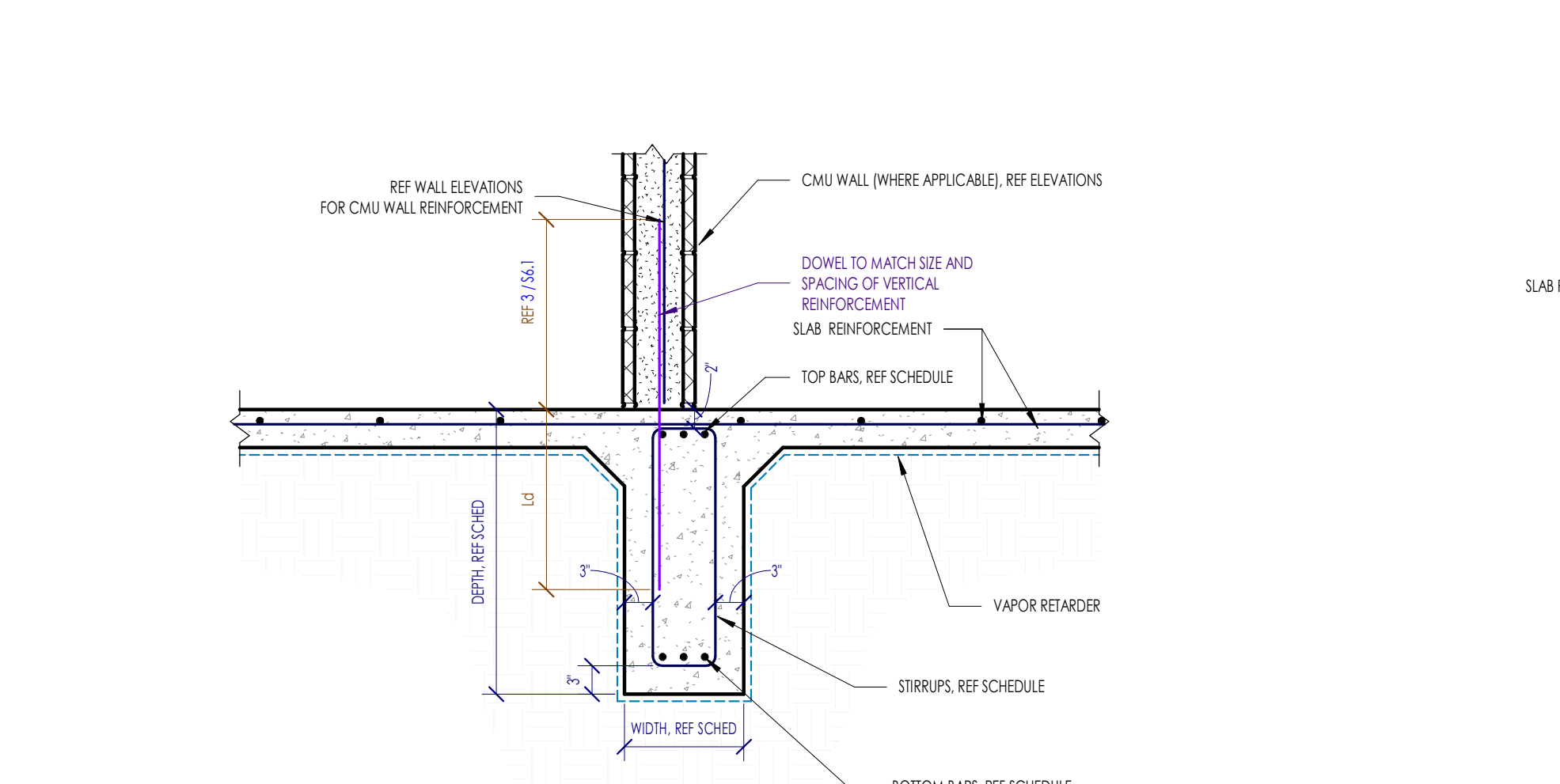
3 TYPICAL EXTERIOR GRADE BEAM-VERTICAL MOISTURE BARRIER AT CMU WALL
NOT TO SCALE



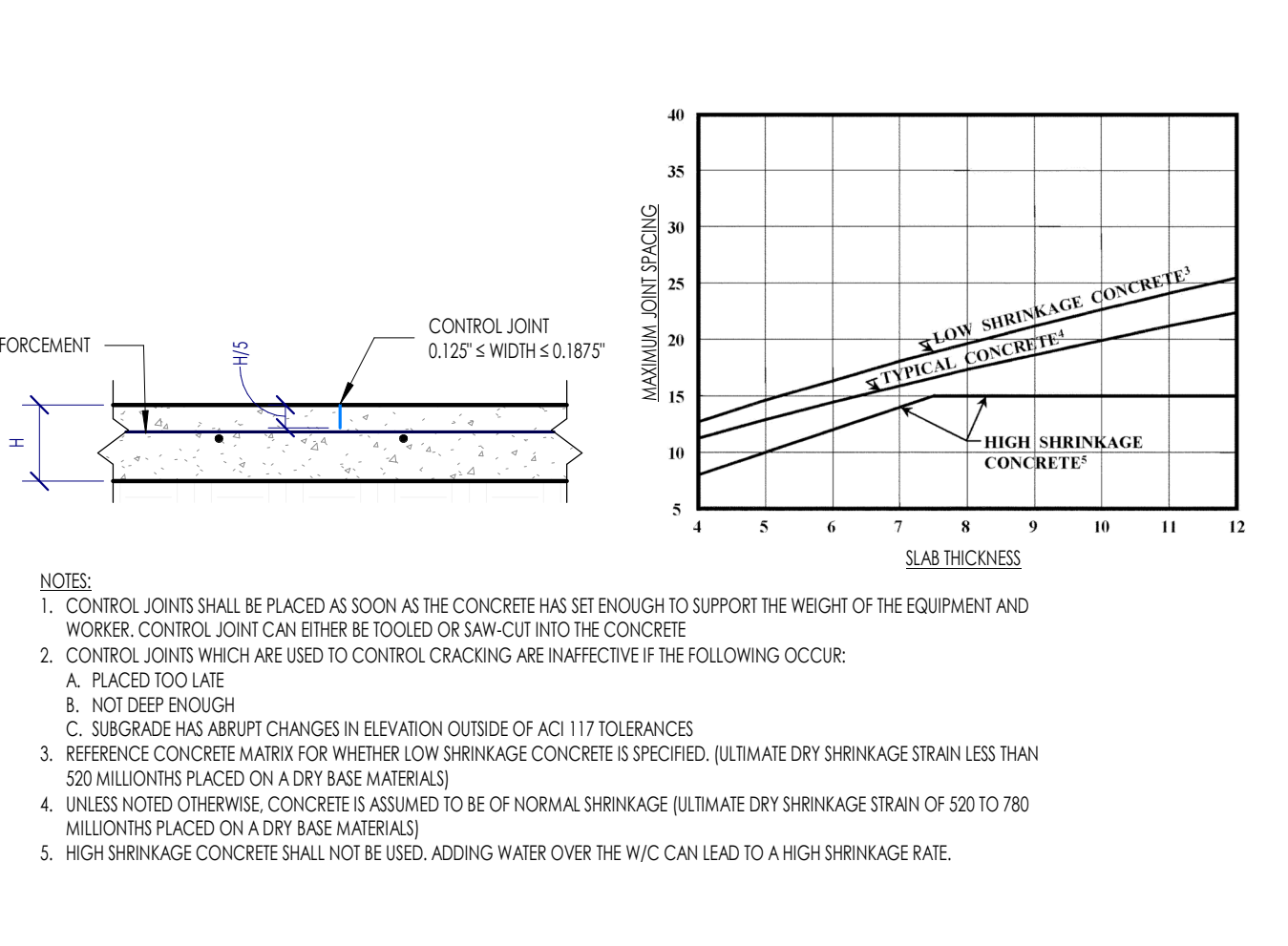
4 TYPICAL EXTERIOR GRADE BEAM @ ADJACENT BEAM
NOT TO SCALE



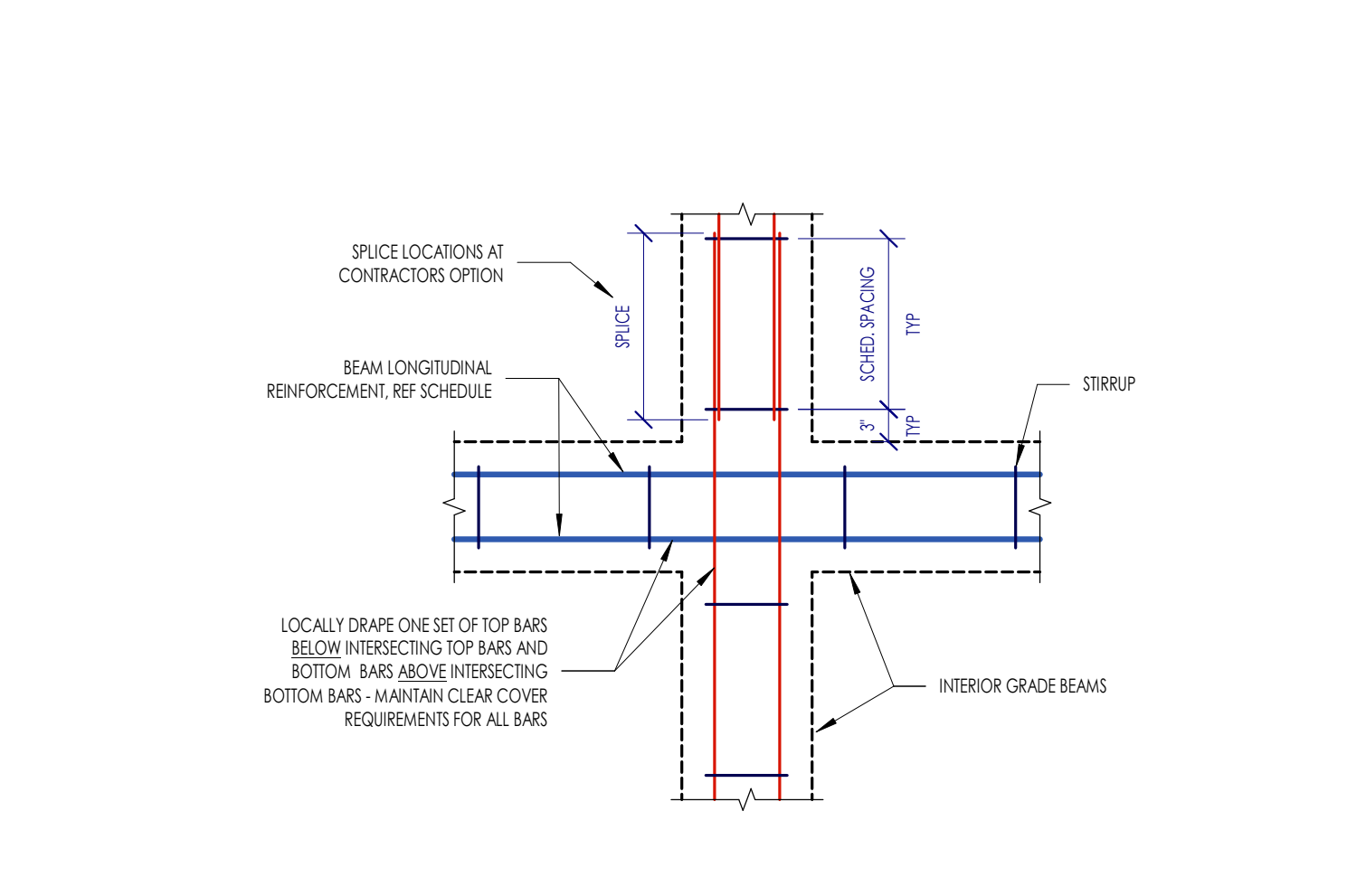
5 TYPICAL SLAB-ON-GRADE SECTION
NOT TO SCALE



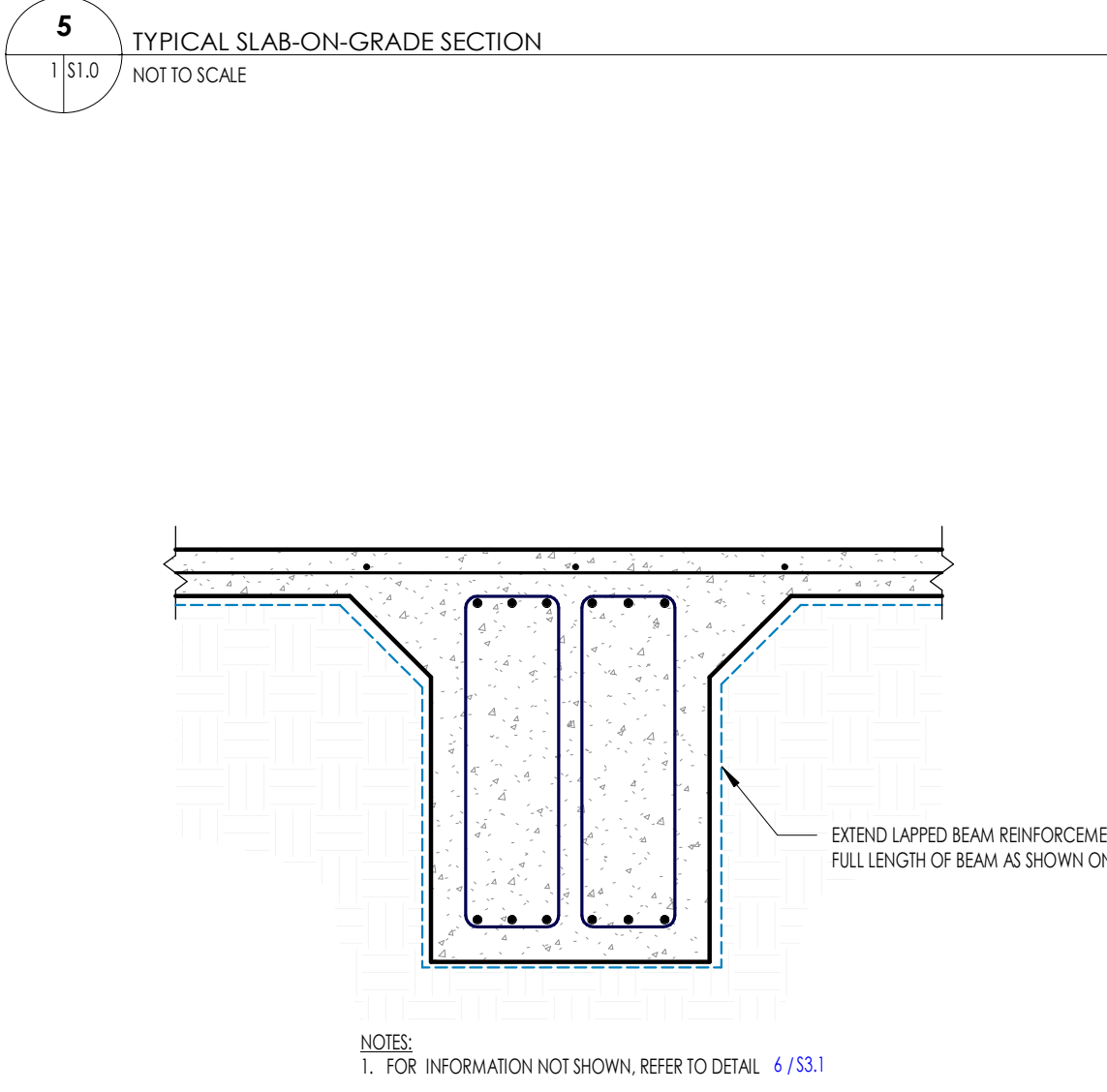
6 TYPICAL INTERIOR GRADE BEAM
NOT TO SCALE



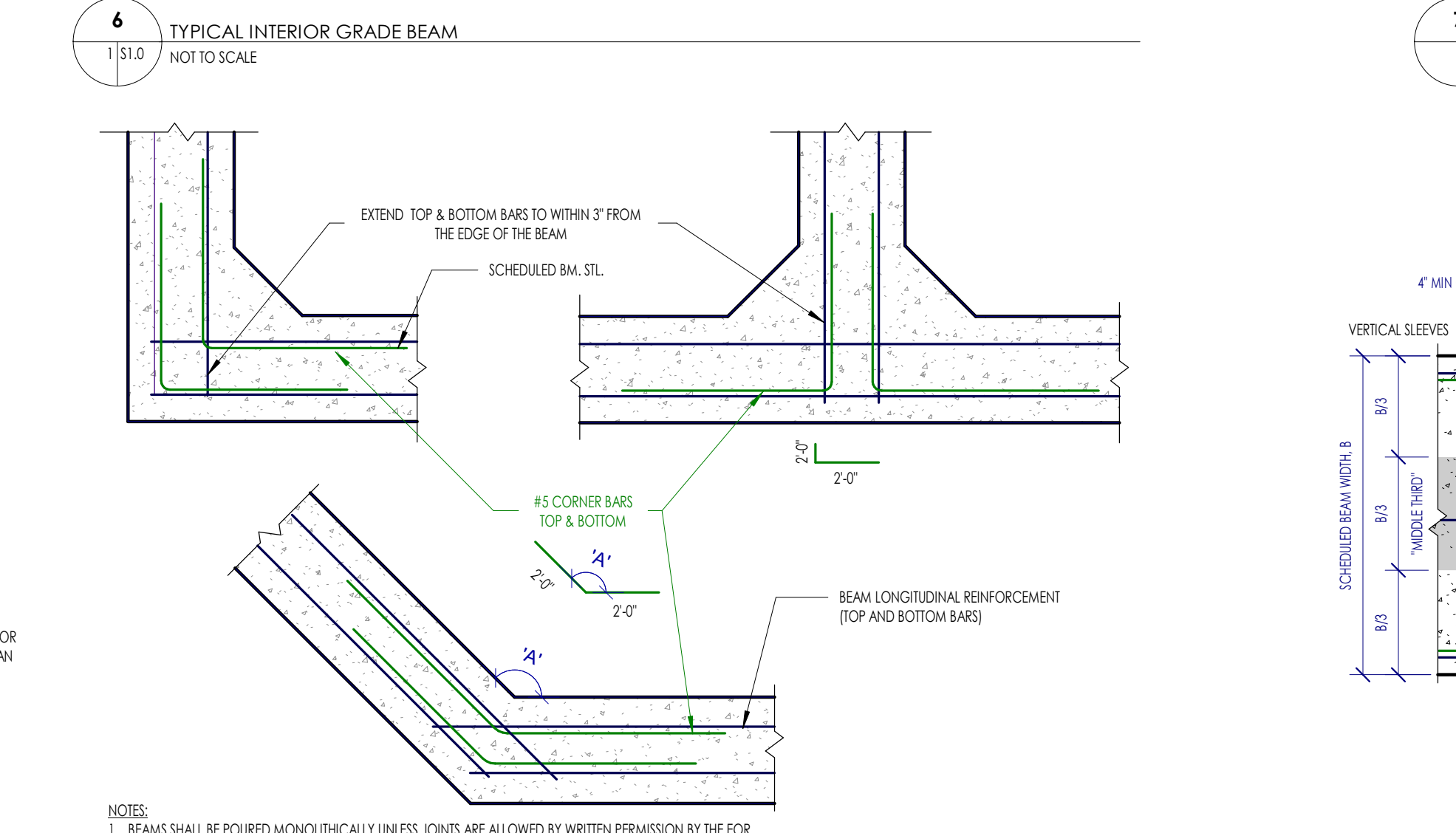
7 TYPICAL CONTROL JOINT IN SLAB-ON-GRADE
NOT TO SCALE



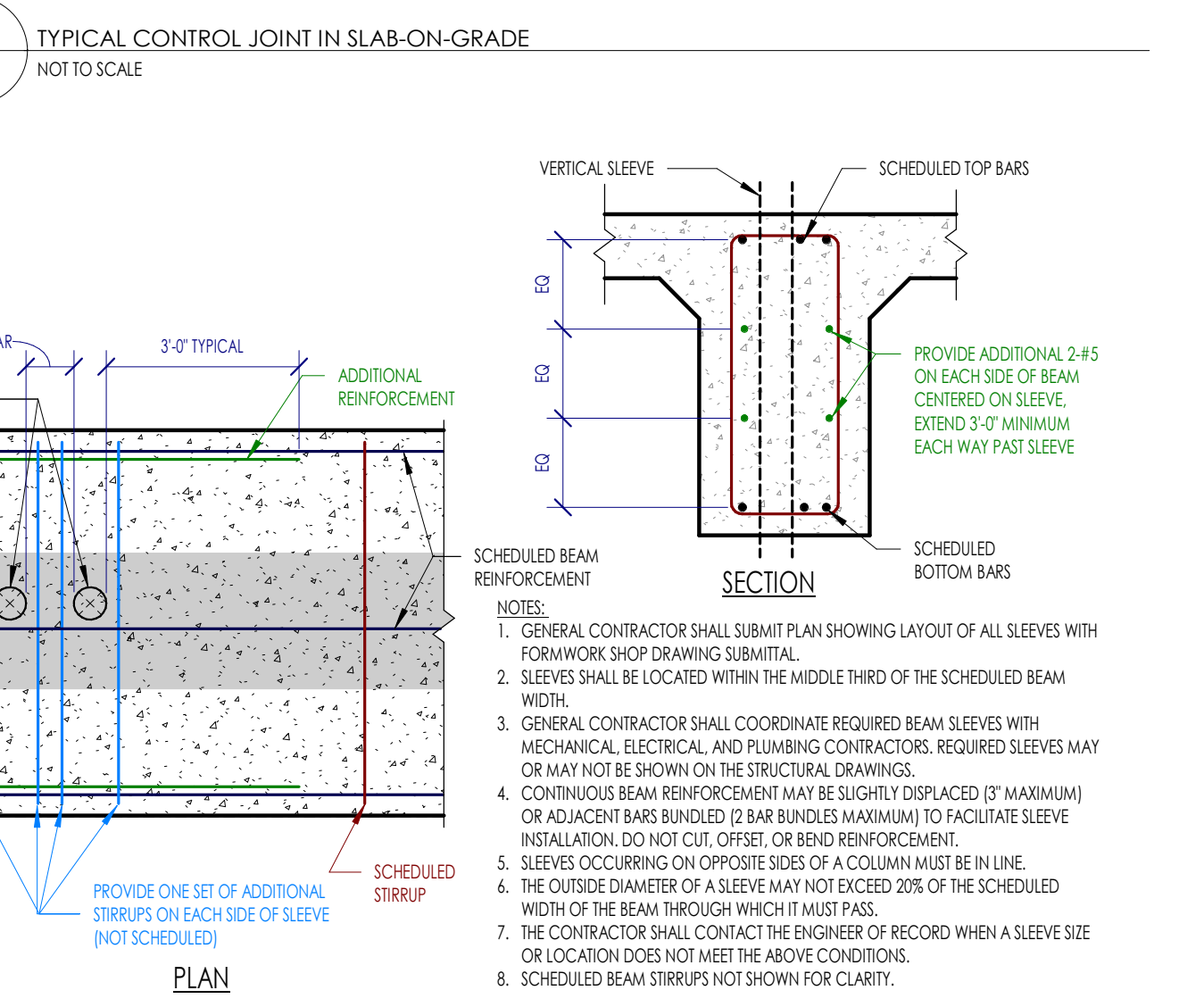
8 TYPICAL INTERIOR BEAM INTERSECTION
NOT TO SCALE



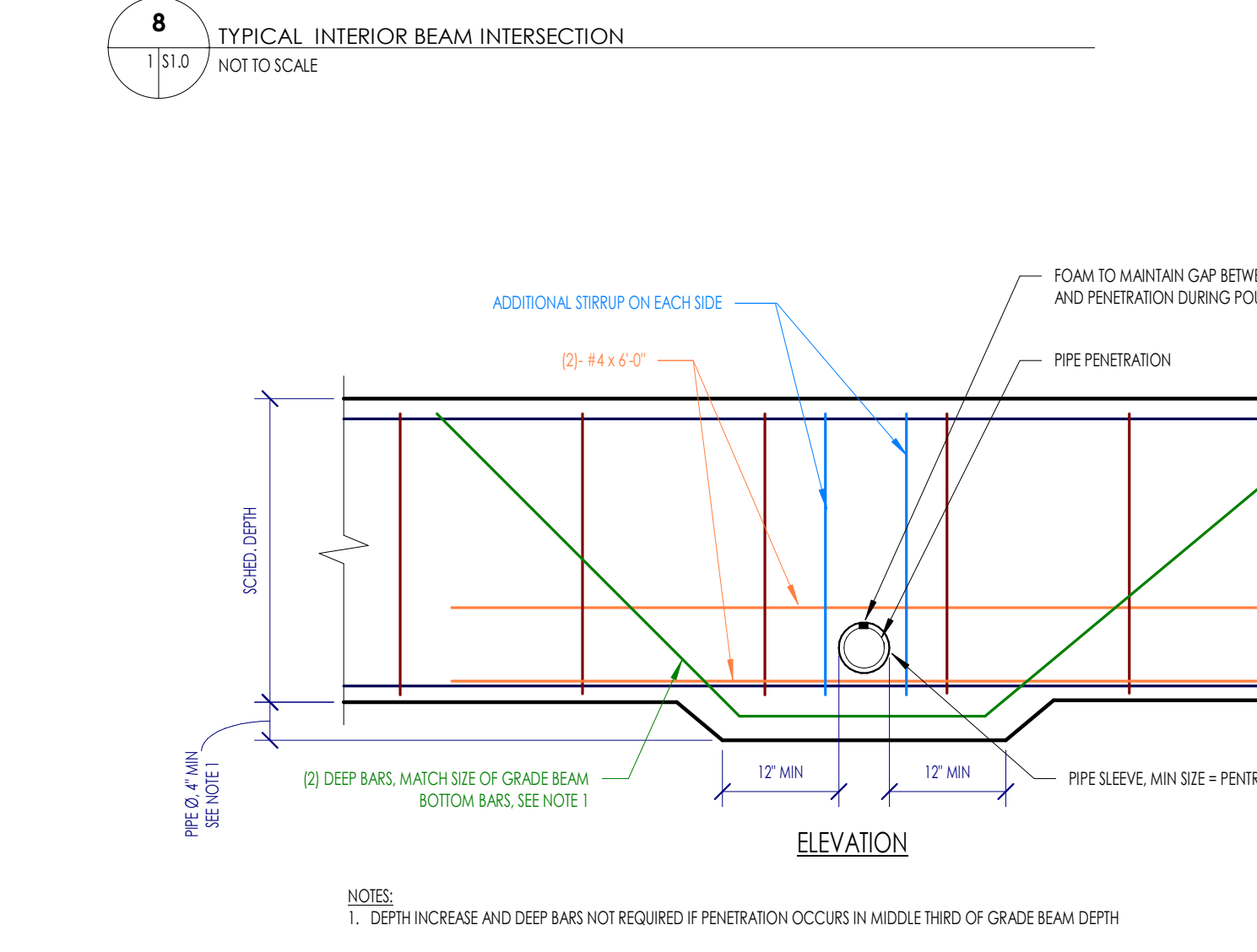
9 TYPICAL INTERIOR WIDENED GRADE BEAM
NOT TO SCALE



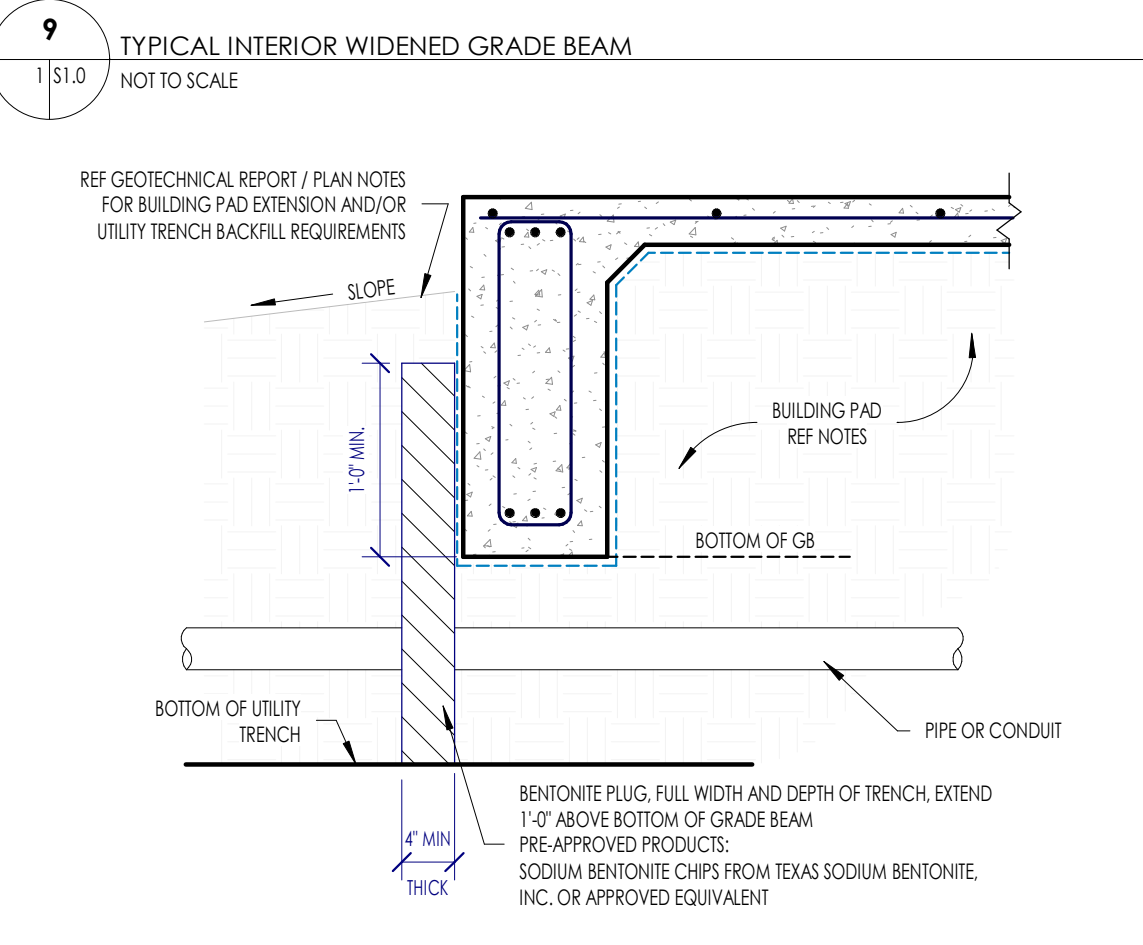
10 TYPICAL CORNER BARS
NOT TO SCALE



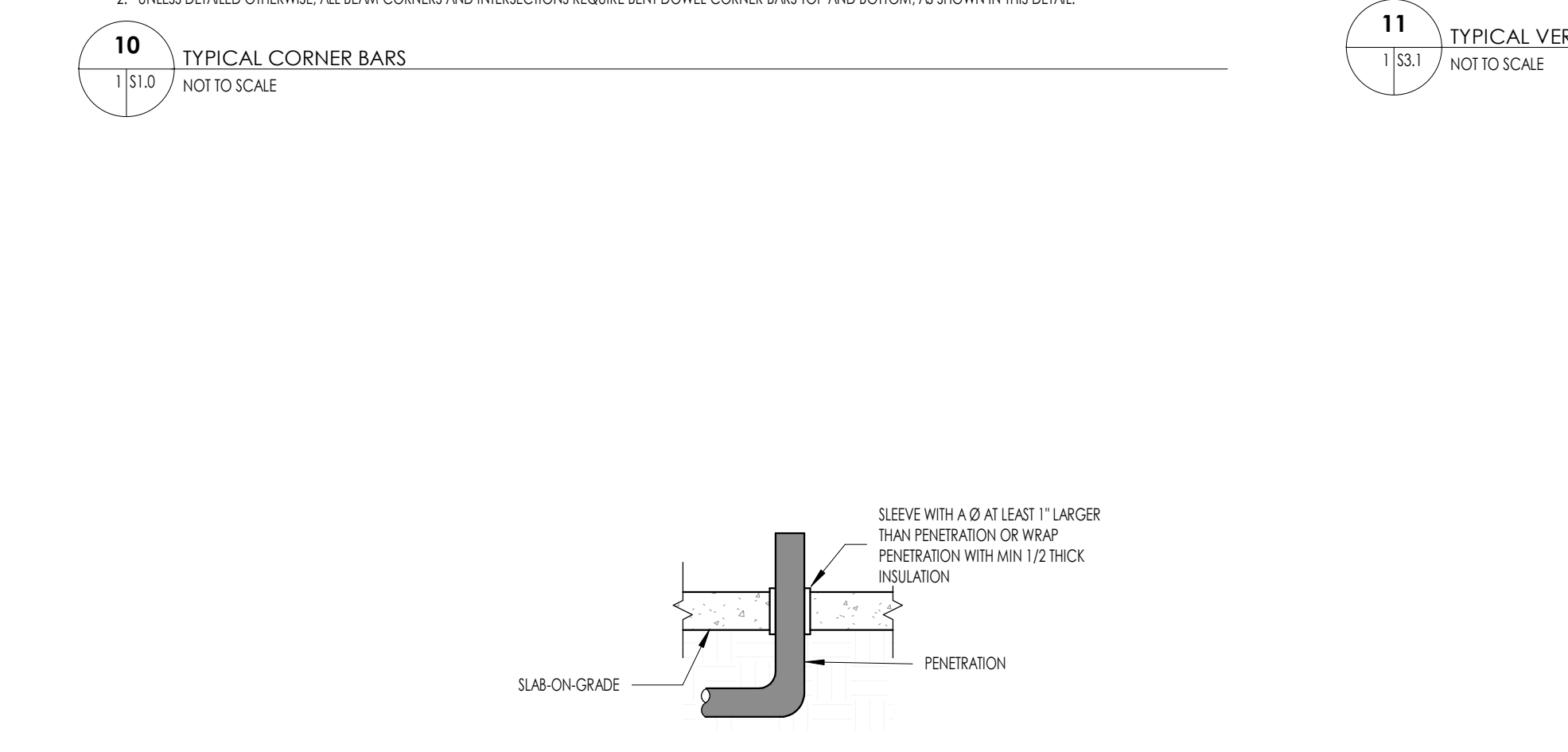
11 TYPICAL VERTICAL PENETRATION IN GRADE BEAM
NOT TO SCALE



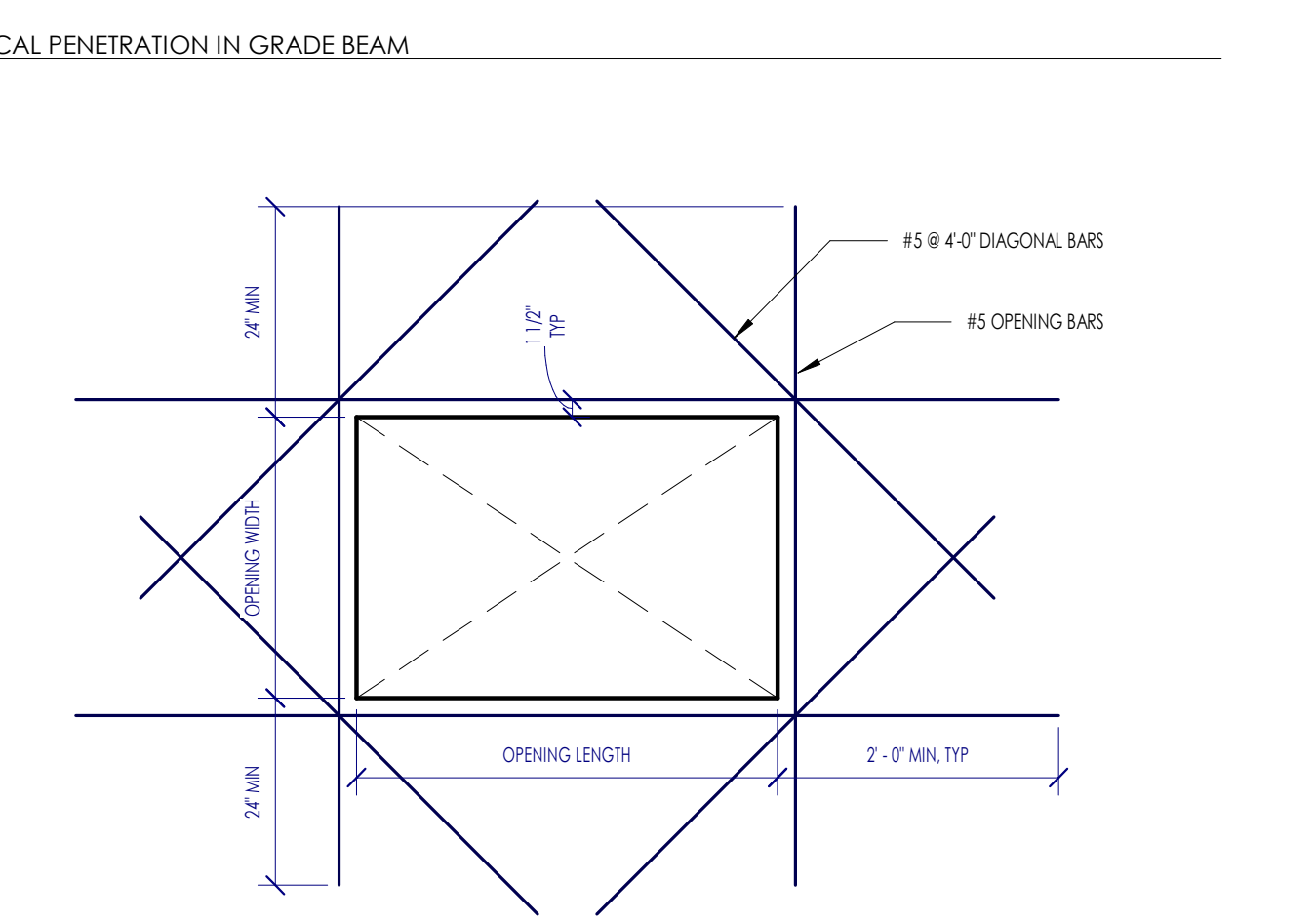
12 TYPICAL HORIZONTAL PENETRATION IN BEAM
NOT TO SCALE



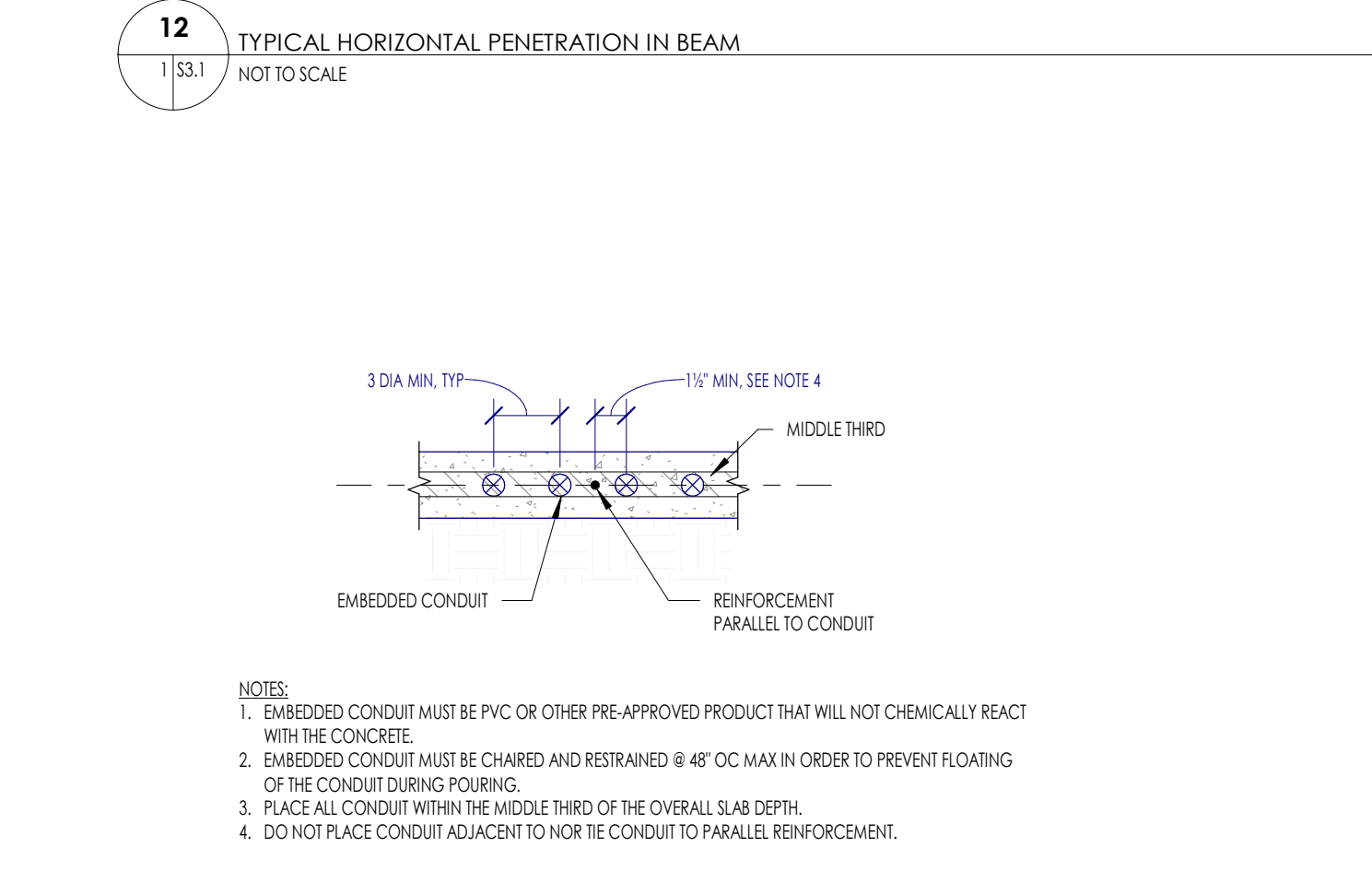
13 TYPICAL UTILITY TRENCH UNDER BUILDING PAD BENTONITE PLUG AT EXTERIOR BEAM
NOT TO SCALE



14 VERTICAL PENETRATION THROUGH SLAB-ON-GRADE
NOT TO SCALE



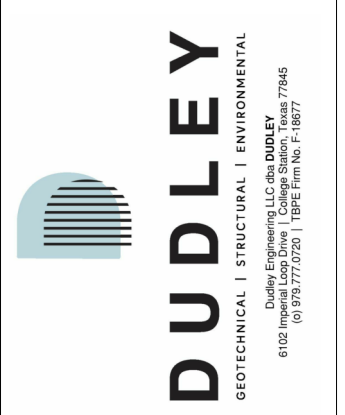
15 TYPICAL REINFORCEMENT AT SLAB BLOCKOUT
NOT TO SCALE



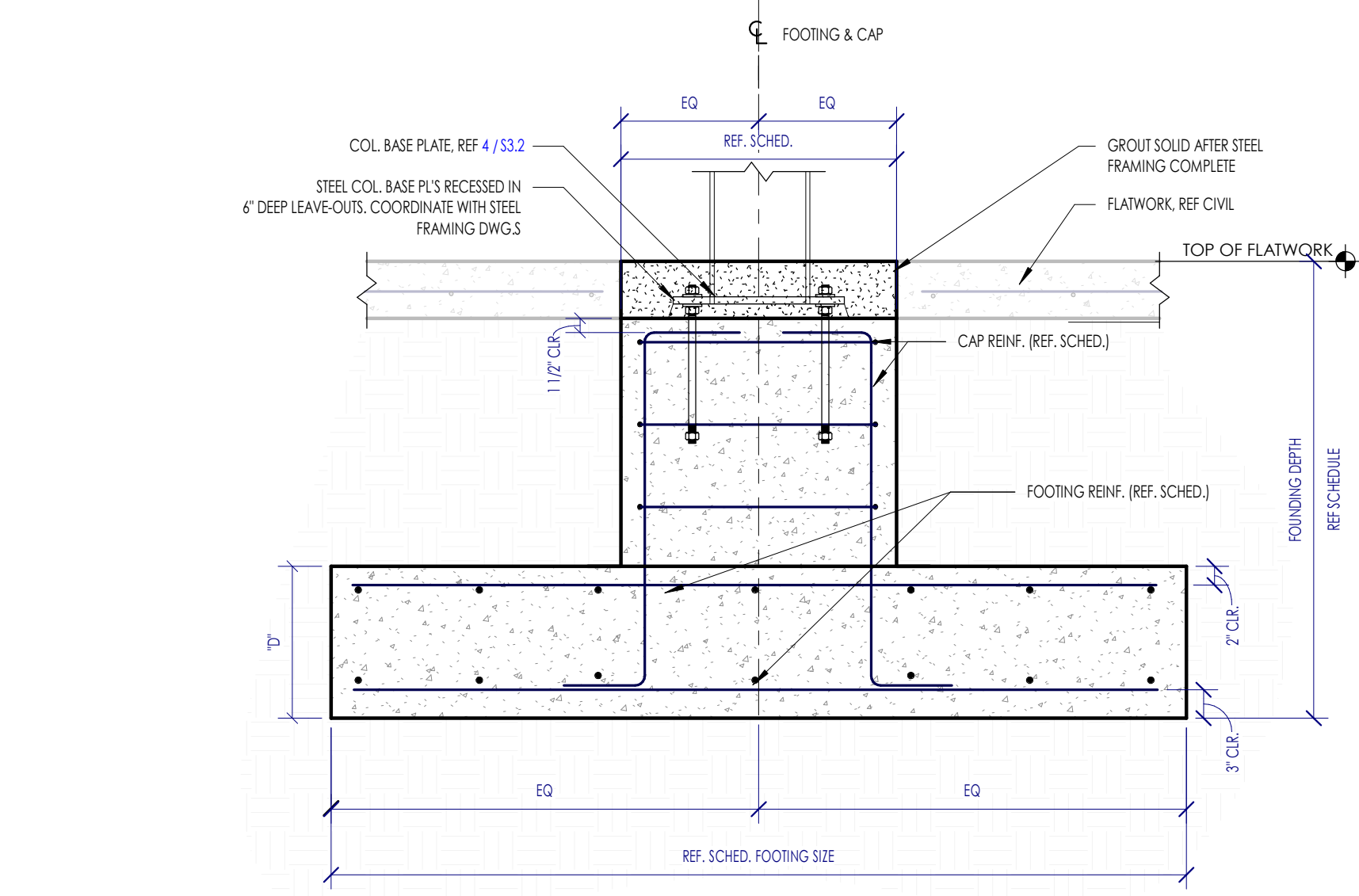
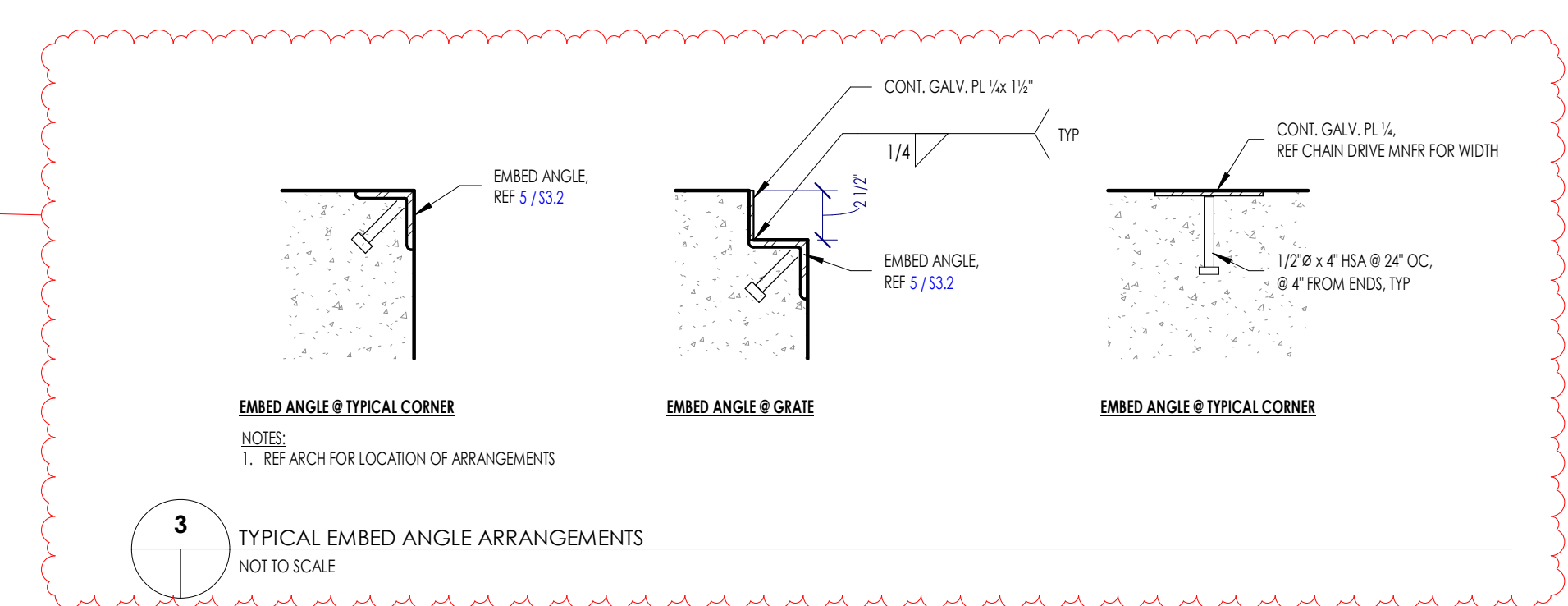
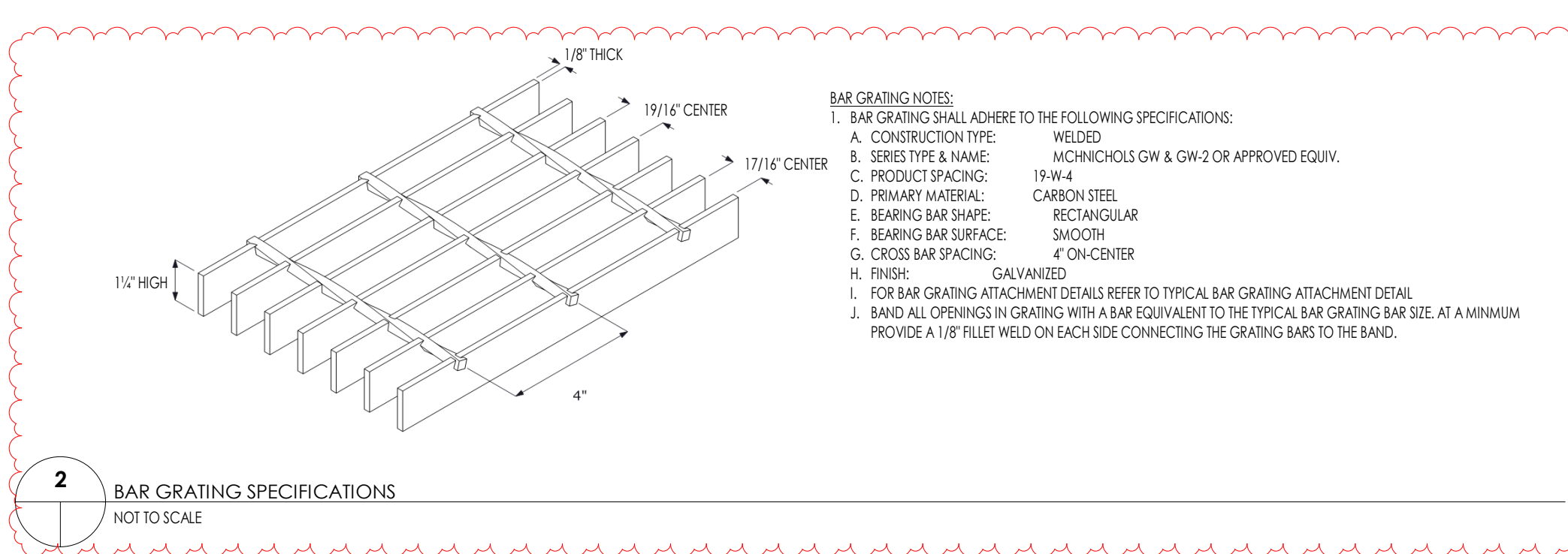
16 TYPICAL CONDUITS EMBEDDED IN SLAB-ON-GRADE
NOT TO SCALE

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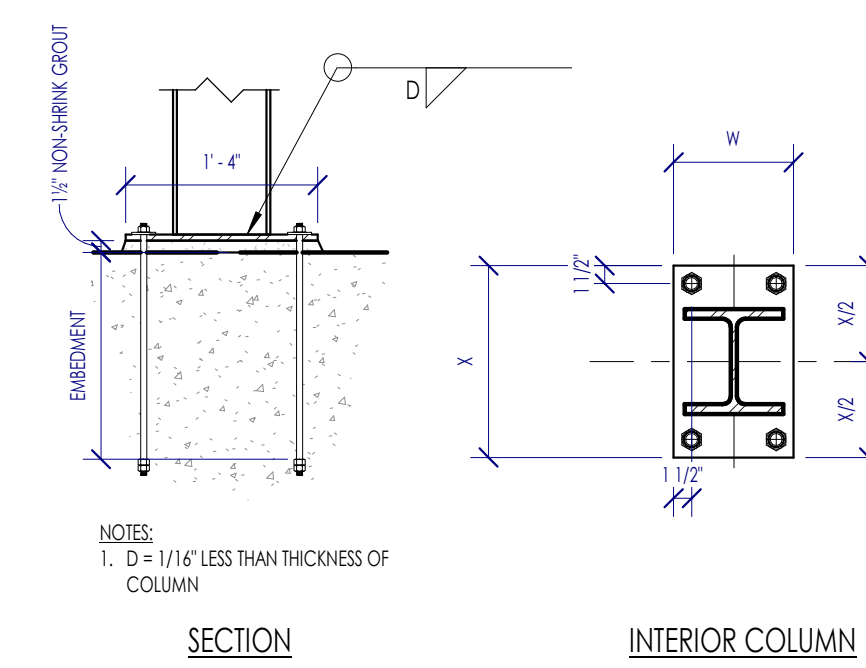


FOOTING DESIGNATION	SIZE L x W x D	FOOTING REIN.	PLINTH SIZE (L x W)	VERT. PLINTH REIN.	PLINTH TIES	FOUNDING DEPTH
F1	4'-0" x 4'-0" x 12"	5- #5 EA. WAY TOP 5- #5 EA. WAY BOTTOM	10" x 14"	4- #5 BARS	3- #3S	3'-0"
F2	7'-0" x 7'-0" x 12"	8- #5 EA. WAY TOP 8- #5 EA. WAY BOTTOM	18" x 14"	8- #5 BARS	5- #3S	4'-0"

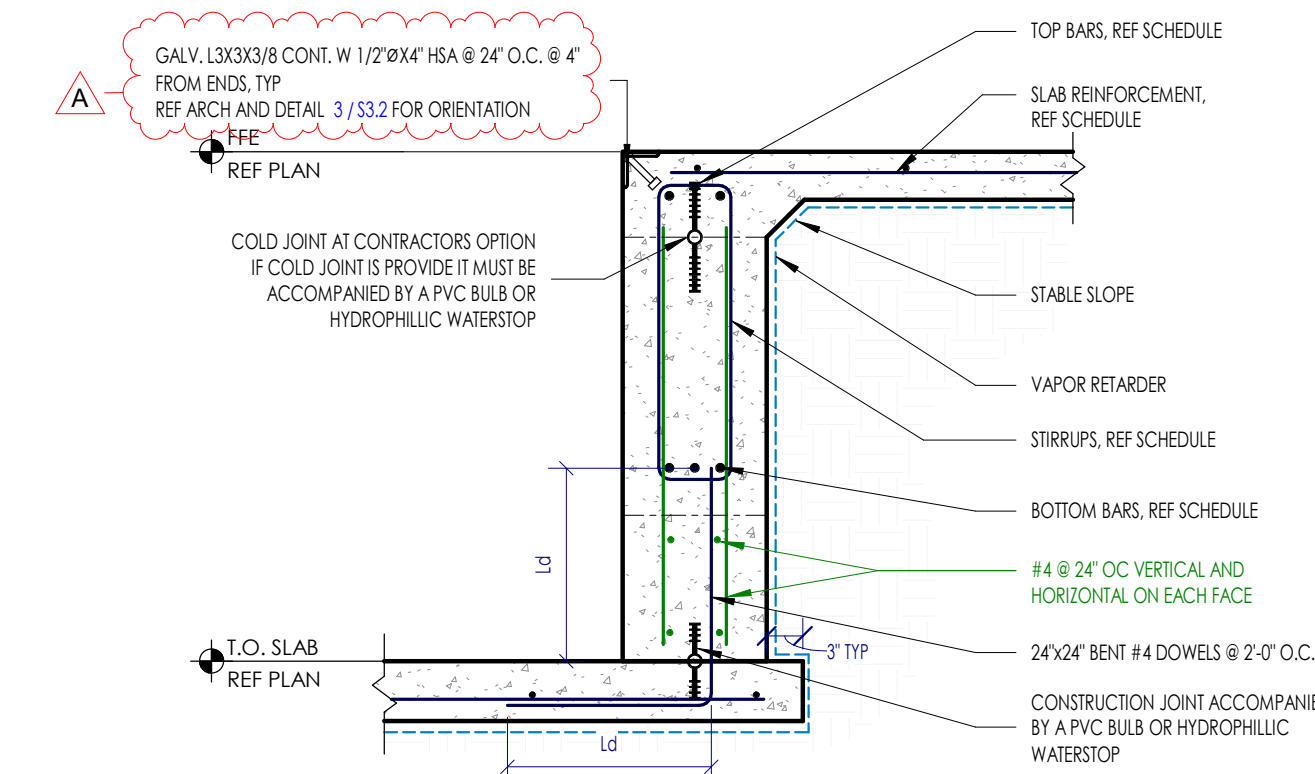


1 TYPICAL SPREAD FOOTING WITH PIER CAP AT COLUMN
2/51.0 NOT TO SCALE

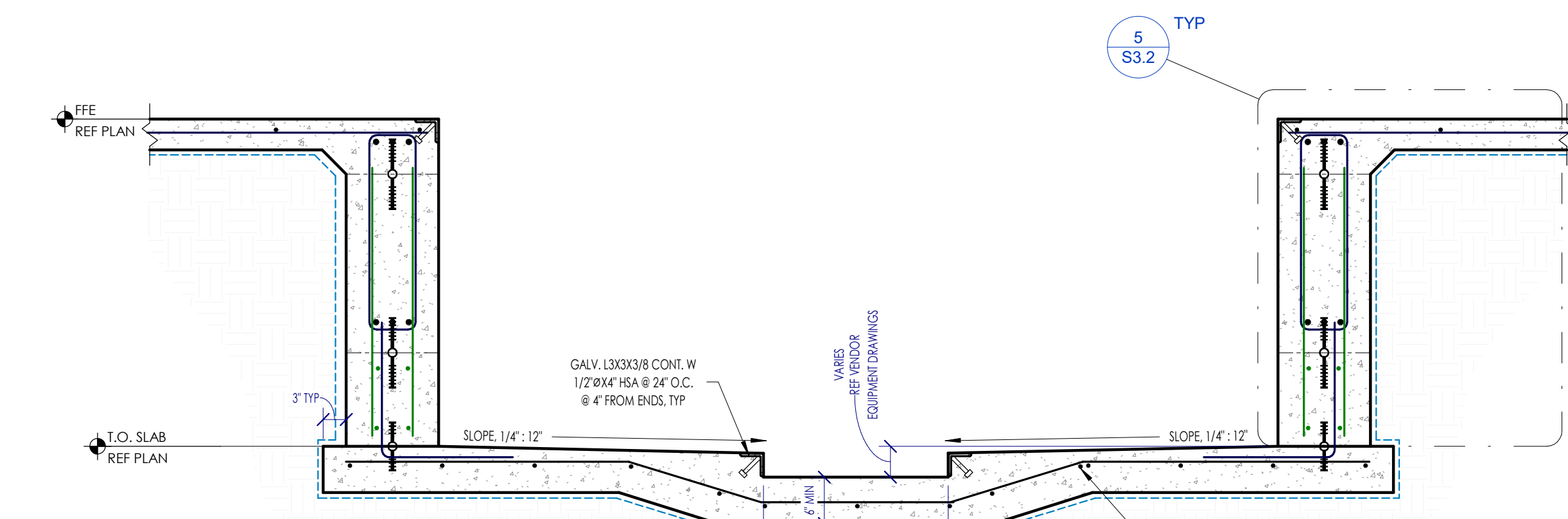
MARK	BASE PLATE DIMENSIONS				CONDITION	QTY	DIA.	EMBEDMENT
	X	W	T					
BP-1	10"	10"	1"		INTERIOR	4	1"	1'-6"
BP-2	16"	10"	1"		INTERIOR	4	1"	1'-6"



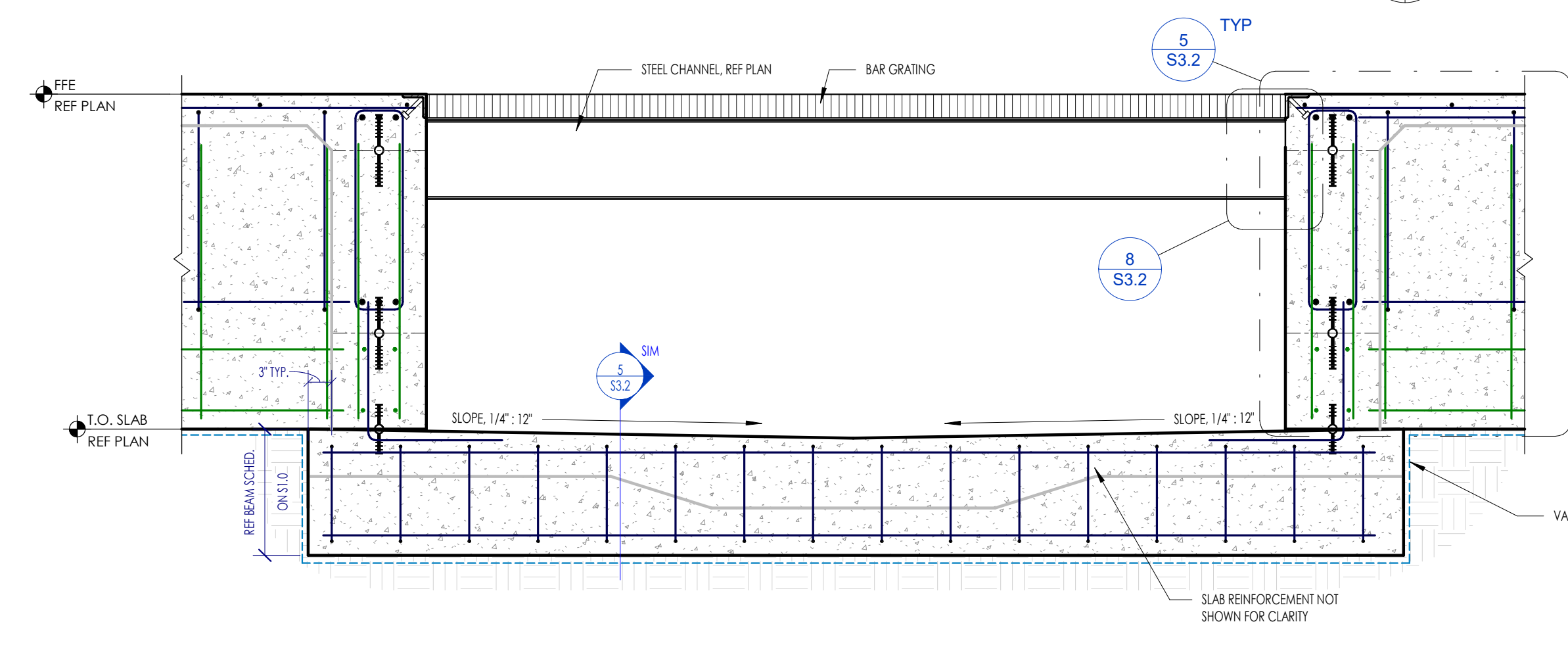
4 TYPICAL BASE PLATE AND ANCHOR ROD SCHEDULE AT COLUMNS
NOT TO SCALE



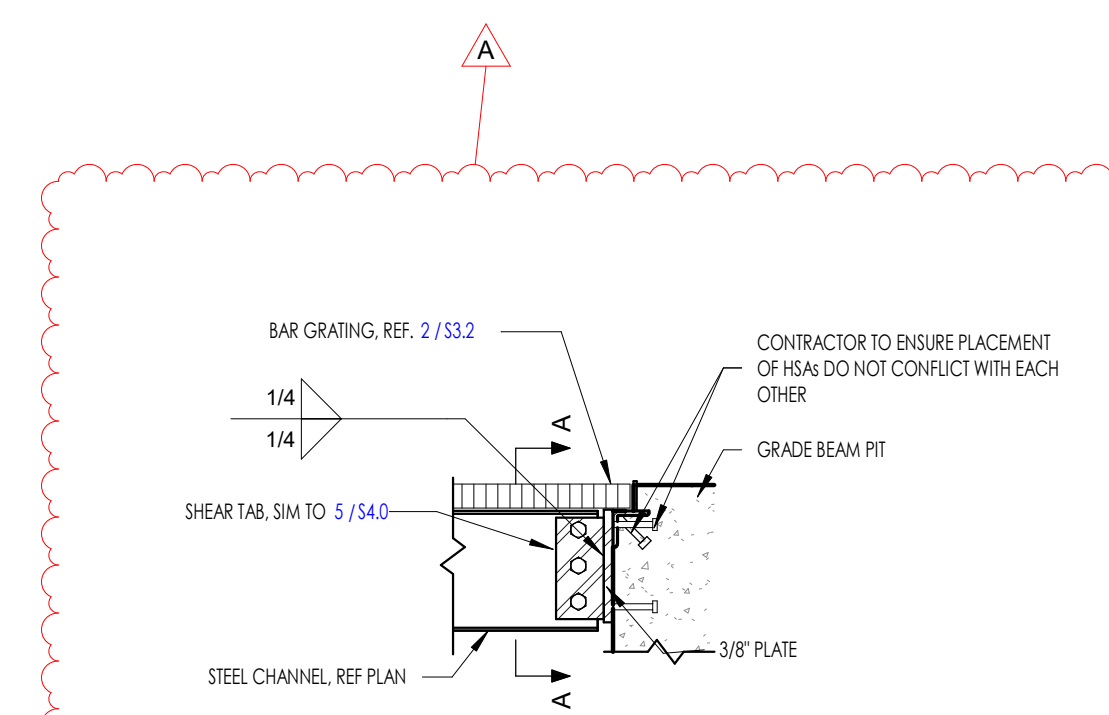
5 TYPICAL GRADE BEAM @ PIT
1/51.0 NOT TO SCALE



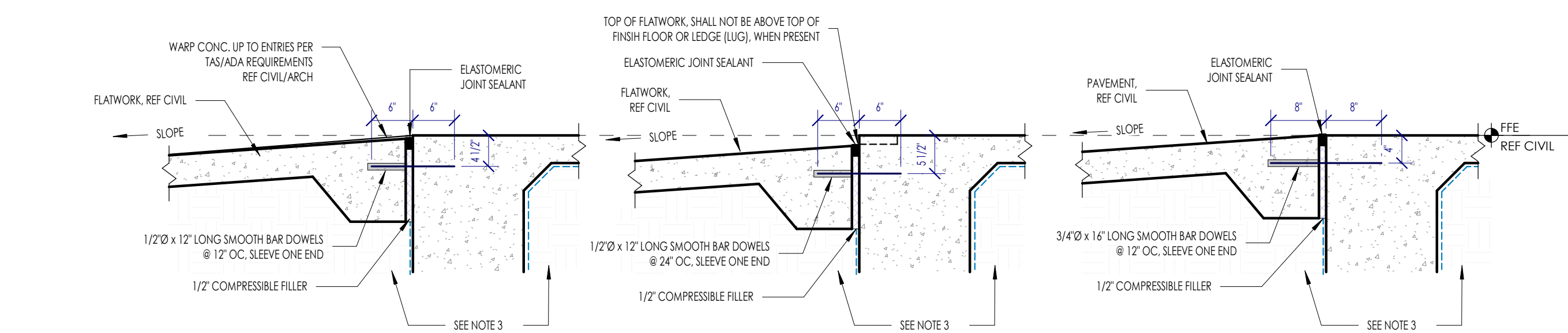
6 TYPICAL TRENCH SECTION
1/51.0 NOT TO SCALE



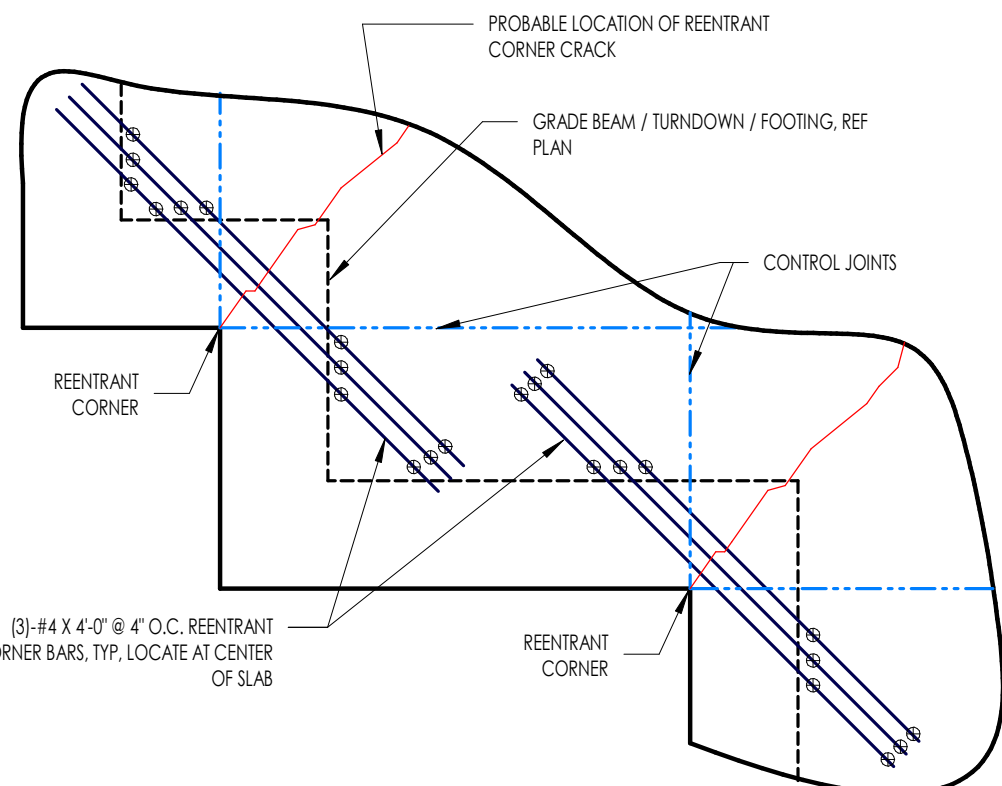
7 TYPICAL TRENCH END CONDITION
1/51.0 NOT TO SCALE



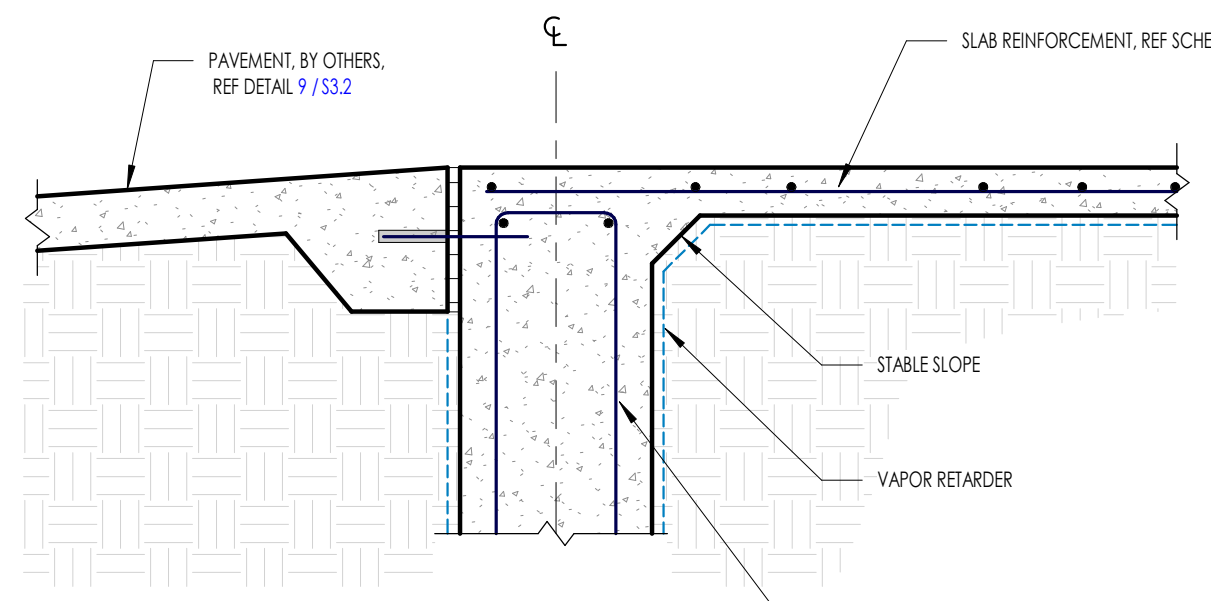
8 BAR GRATING SUPPORT CHANNEL CONNECTION TO GRADE BEAM
1/51.0 NOT TO SCALE



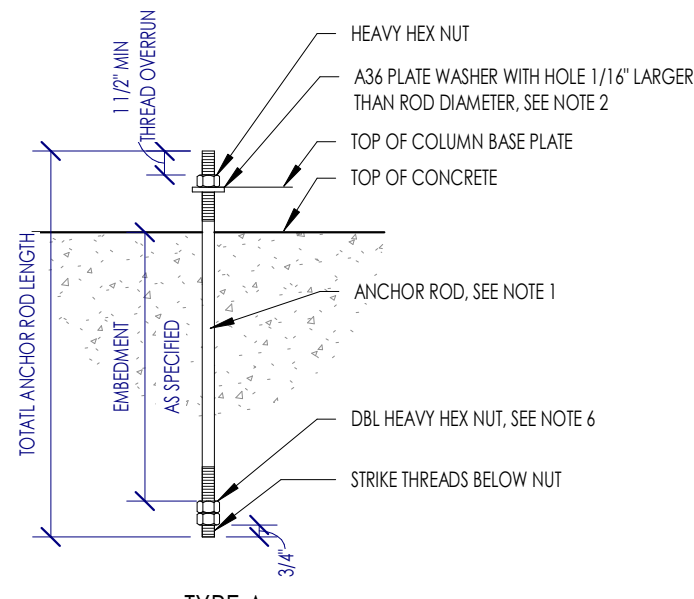
9 TYPICAL FLATWORK/PAVEMENT DOWELS AT BUILDING
NOT TO SCALE



10 TYPICAL REINTRANT CORNER BARS
1/51.0 NOT TO SCALE



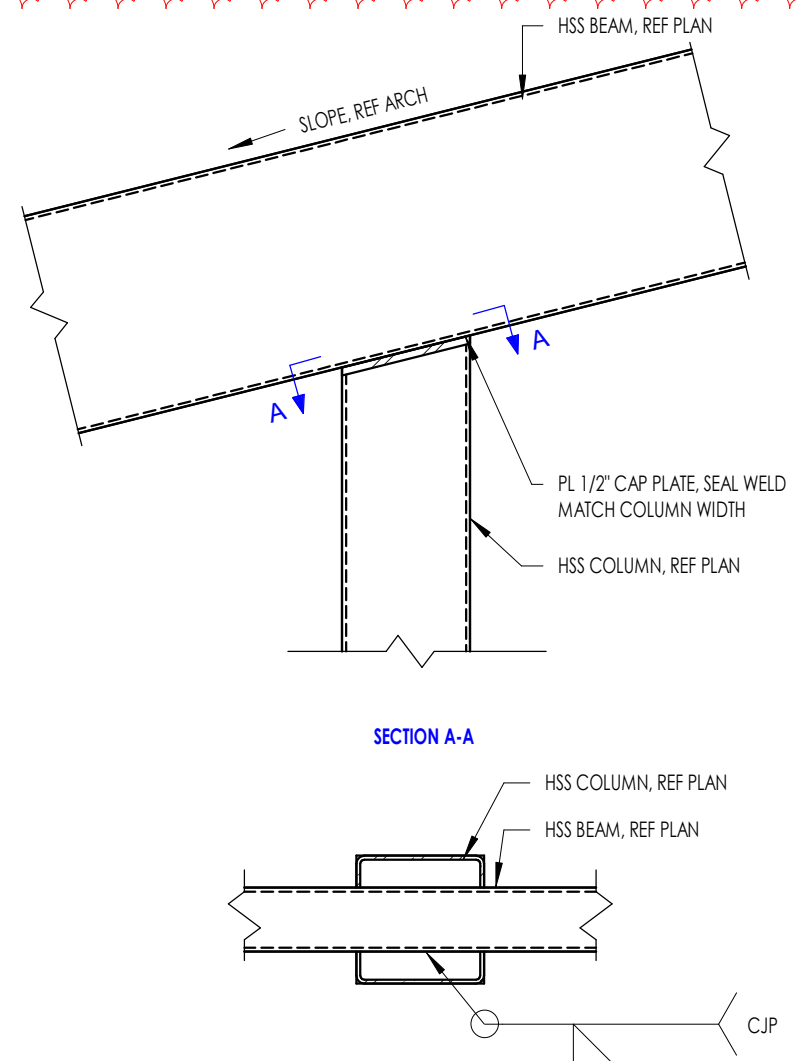
11 TYPICAL EXTERIOR GRADE BEAM @ PAVEMENT-VERTICAL MOISTURE BARRIER
1/51.0 NOT TO SCALE



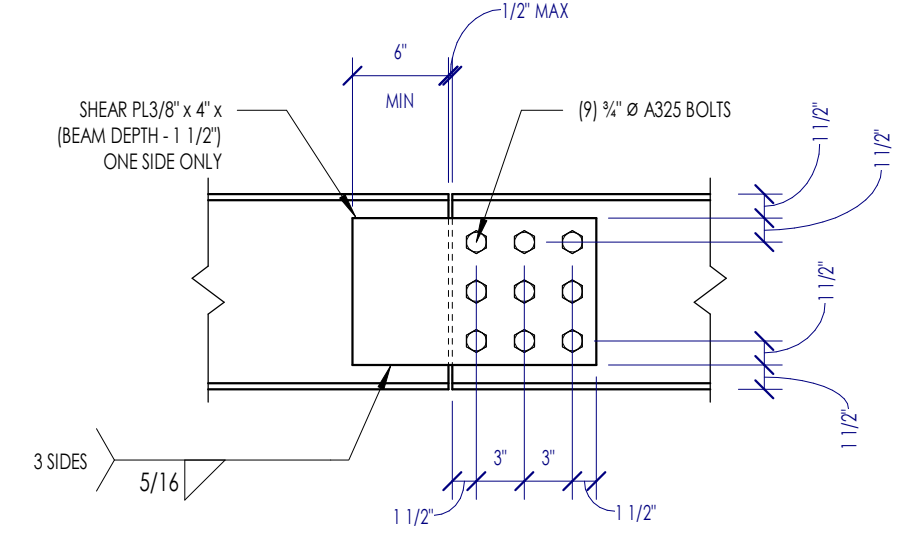
ANCHOR ROD DIAMETER	HOLE DIAMETER	SQUARE PLATE WASHER SIZE	PLATE WASHER THICKNESS	TYPE B ANCHOR PLATE
5/8"	1 3/16"	1 1/2"	1/4"	PL1'x4'x0-4"
3/4"	1 5/16"	2"	1/4"	PL1'x4'x0-4"
7/8"	1 9/16"	2 1/2"	5/16"	PL1'x4'x0-4"
1"	1 13/16"	3"	3/8"	PL1 1/2'x5'x0-5"
1 1/2"	2 5/16"	3 1/2"	1/2"	PL1 1/2'x5'x0-5"

- NOTES:
1. ALL TYPE A ANCHOR RODS SHALL BE F1554 GRADE 36.
 2. ALL TYPE B ANCHOR RODS SHALL BE F1554 GRADE 55 S1.
 3. PLATE WASHERS MUST BE WELDED TO THE BASE PLATE WITH MINIMUM 3/16" FILLET WELD ALL AROUND.
 4. EMBEDMENT DEPTHS ARE PRELIMINARY. FINAL EMBEDMENT TO BE PROVIDED AFTER REVIEW OF METAL BUILDING REACTIONS.
 5. ALL ANCHOR ROD HOLES SHALL ADHERE TO AISC DESIGN GUIDE 01 - TABLE 2.3.
 6. THE DOUBLE NUT MAY BE OMITTED IF THE NUT IS STACK WELDED TO THE ROD.

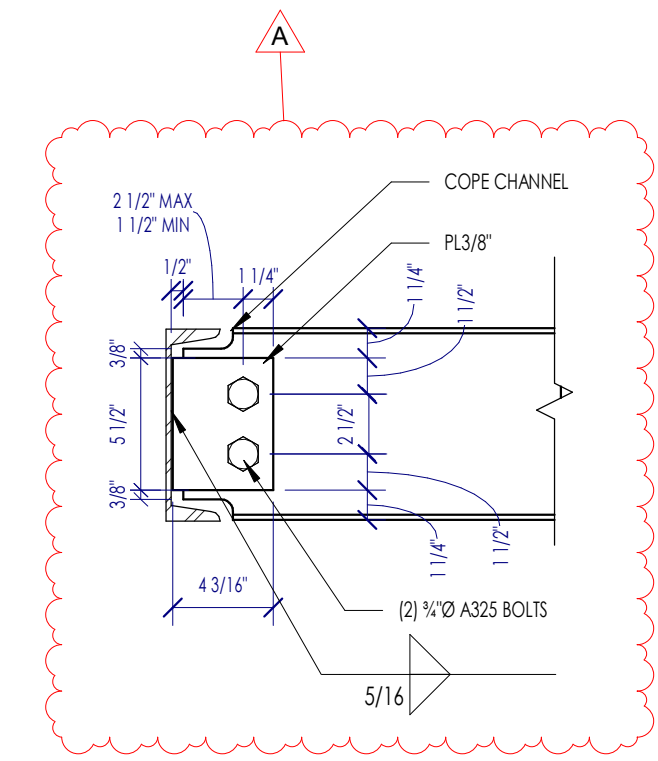
1 TYPICAL ANCHOR ROD
NOT TO SCALE



2 TYPICAL SLOPED HSS BEAM ON TOP OF HSS COLUMN MOMENT CONNECTION
NOT TO SCALE



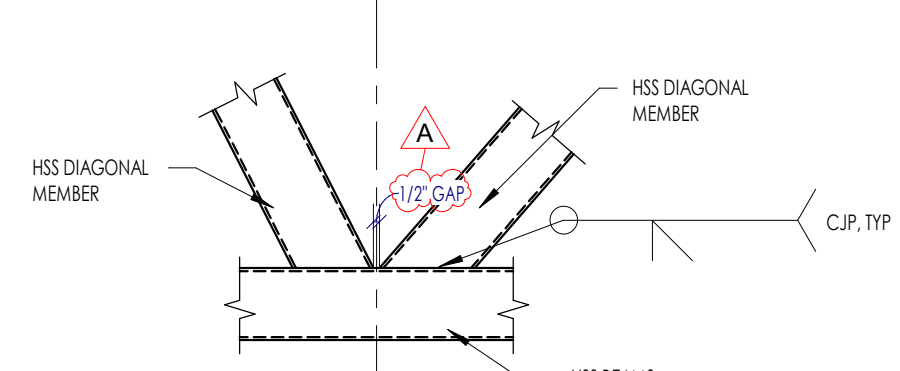
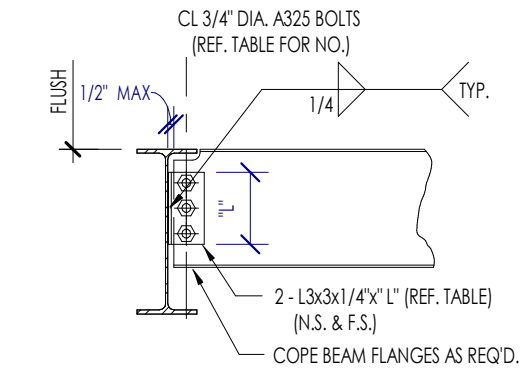
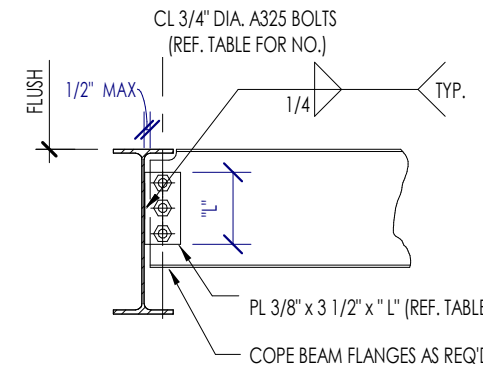
3 TYPICAL WIDE FLANGE BEAM - SHEAR SPLICE
NOT TO SCALE



4 TYPICAL CHANNEL TO CHANNEL CONNECTION
NOT TO SCALE

BEAM	BOLTS	L'	SHEAR CAPACITY
W8, W10	2	6"	26K
W12, W14	3	9"	48K
W16, W18	4	1'-0"	65K
W21	5	1'-3"	85K
W24	6	1'-6"	96K

BEAM	BOLTS	L'	SHEAR CAPACITY
W8, W10	2	6"	30K
W12, W14	3	9"	52K
W16, W18	4	1'-0"	86K
W21	5	1'-3"	120K
W24	6	1'-6"	145K

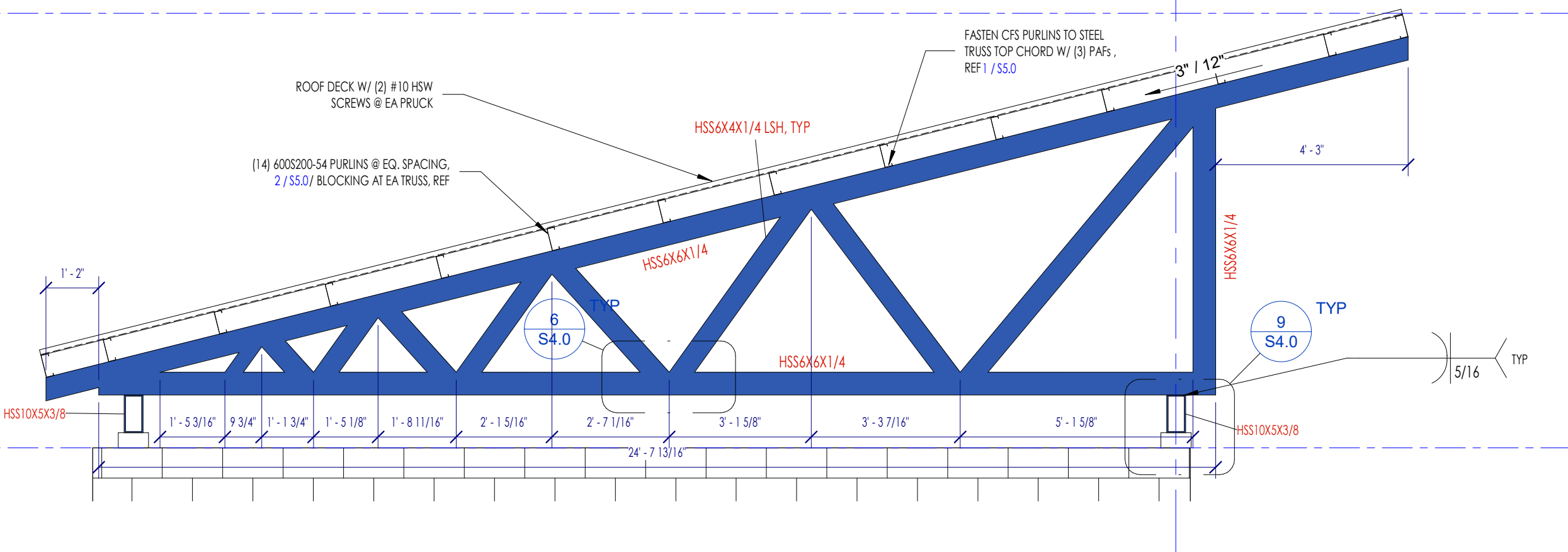


5 TYPICAL WIDE FLANGE BEAM TO GIRDER - SHEAR CONNECTION
NOT TO SCALE

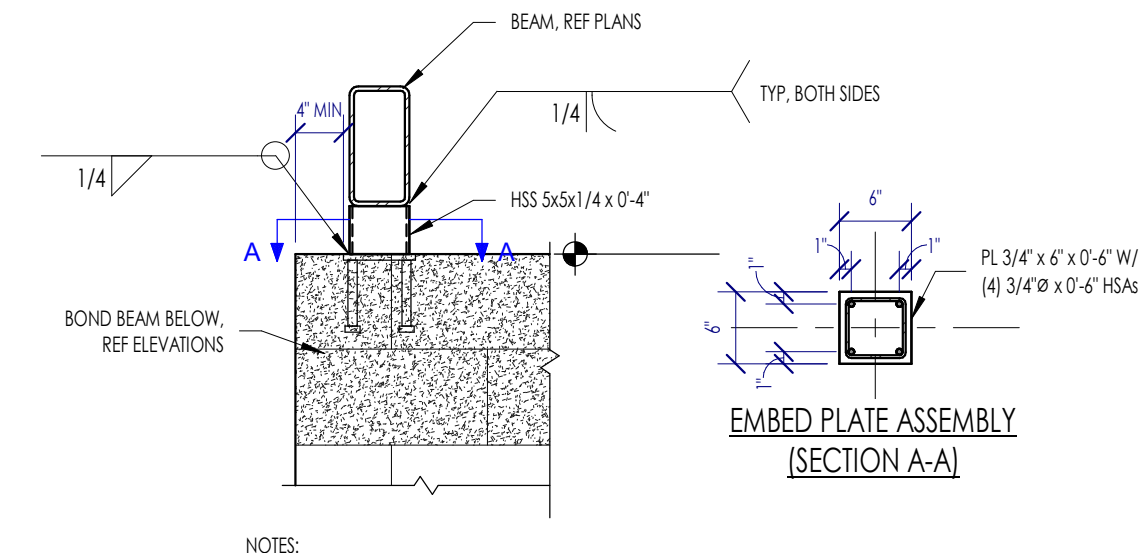
6 TYPICAL HSS TRUSS MEMBER CONNECTION
NOT TO SCALE

7 TYPICAL SLOPED WF BEAM ON TOP OF WF COLUMN
NOT TO SCALE

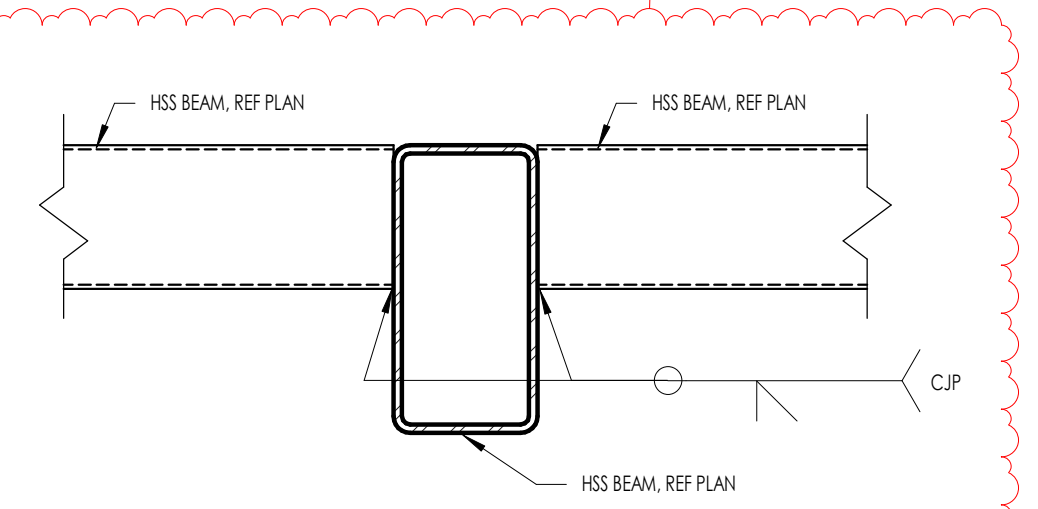
I.O. CANOPY
29' - 7"



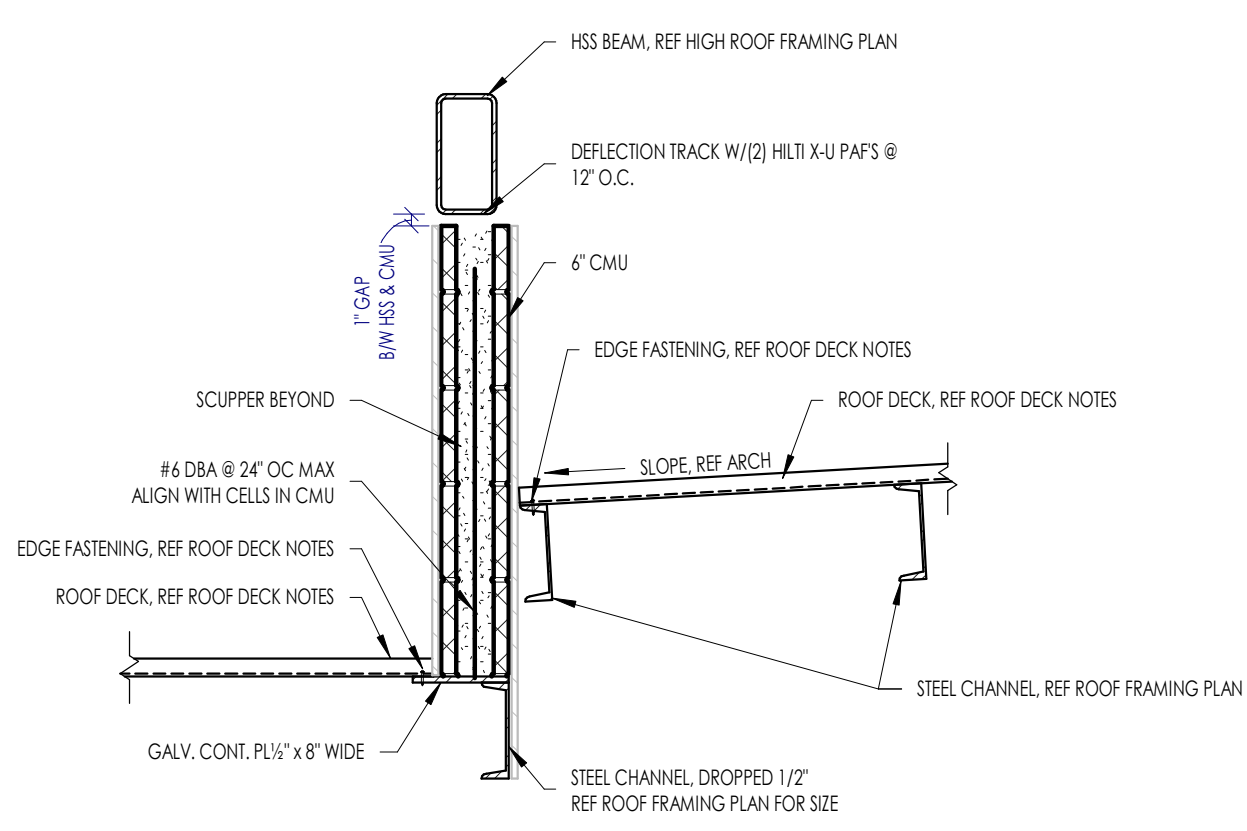
8 ROOF TRUSS DETAIL
NOT TO SCALE



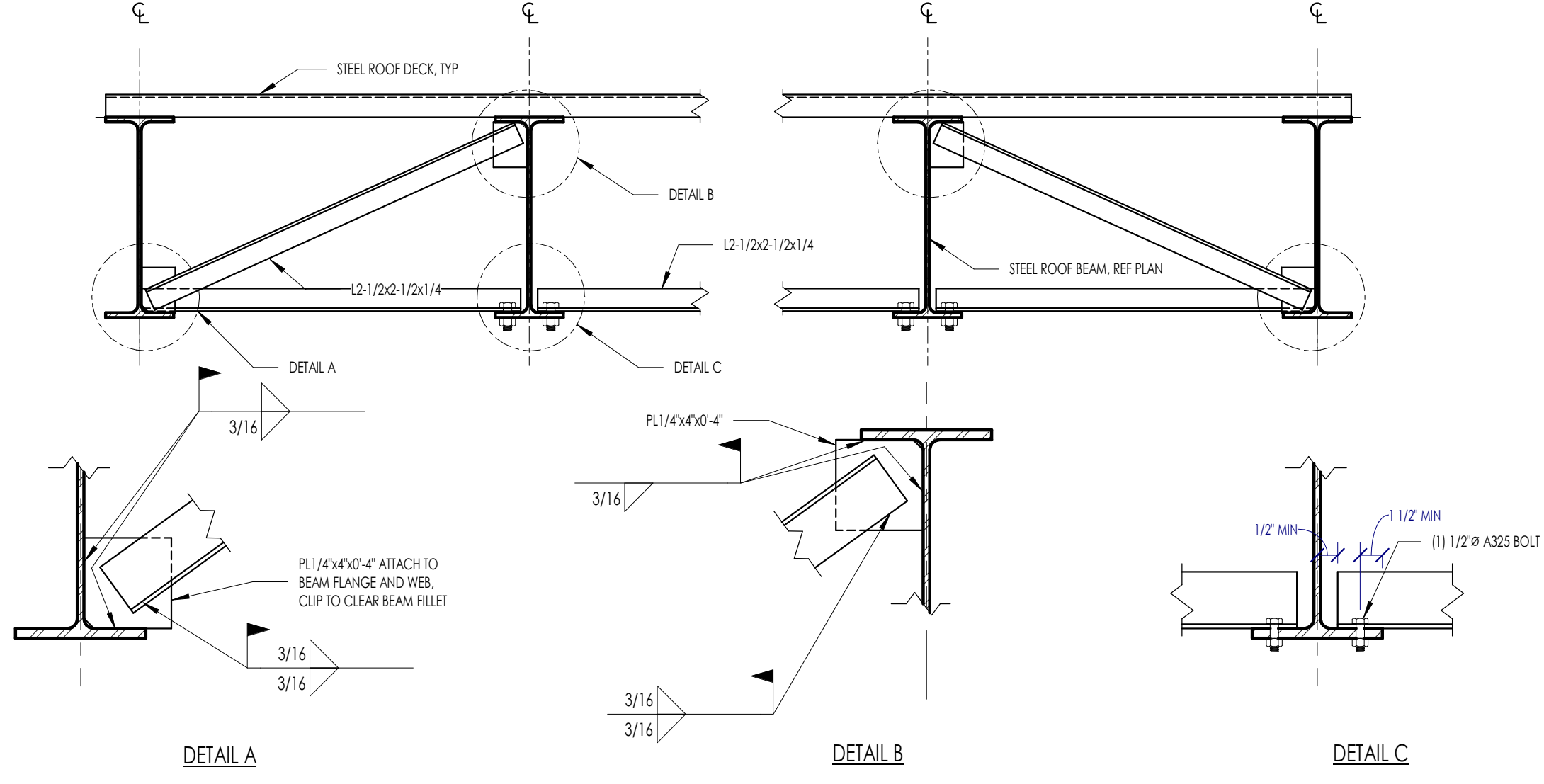
9 TYPICAL TRUSS BEAM CONNECTION TO CMU
NOT TO SCALE



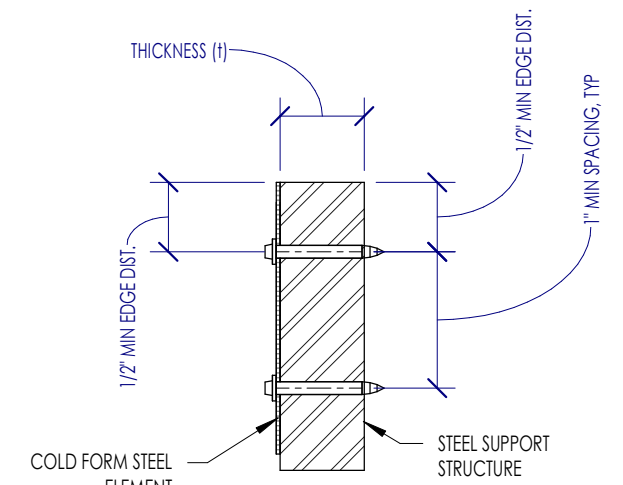
10 TYPICAL HSS BEAM TO HSS BEAM MOMENT CONNECTION
NOT TO SCALE



11 6" CMU WALL ON STEEL BEAM AT TOWER SECTION
NOT TO SCALE



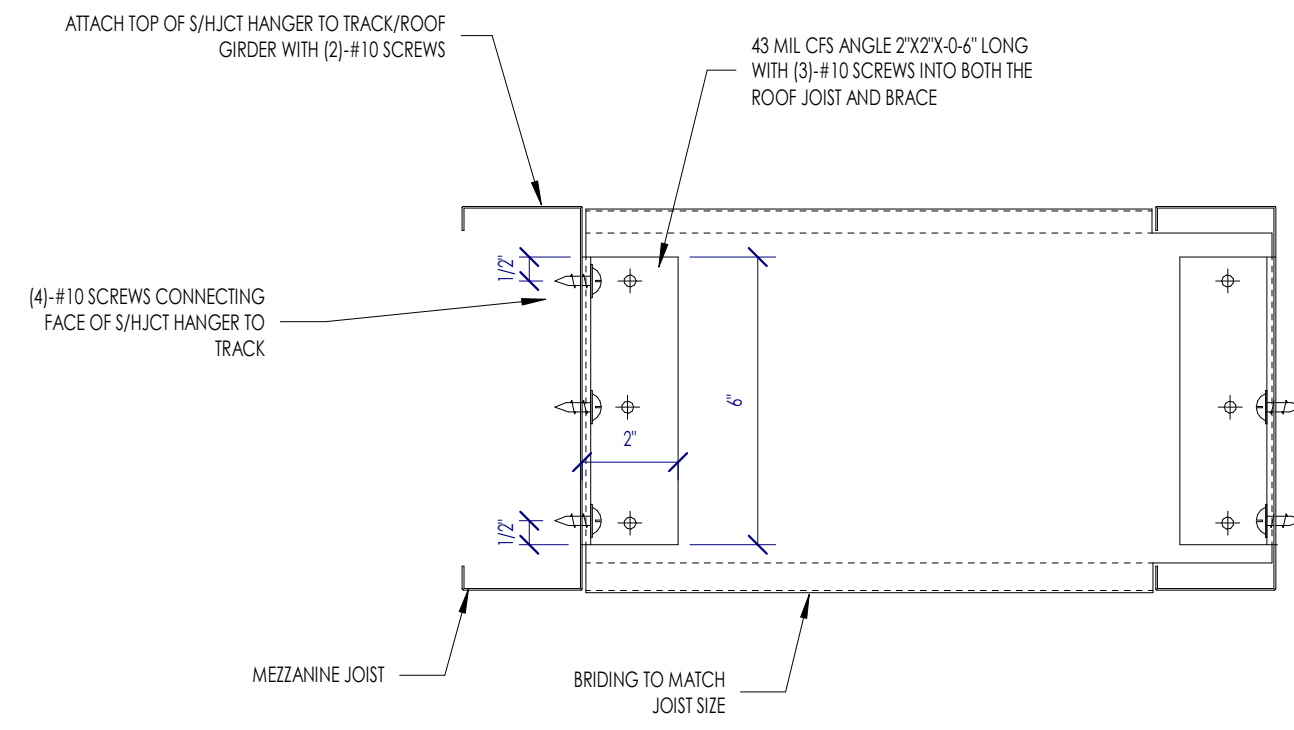
12 TYPICAL BEAM BOTTOM FLANGE BRACE (CONVENTIONAL STEEL CONSTRUCTION)
NOT TO SCALE



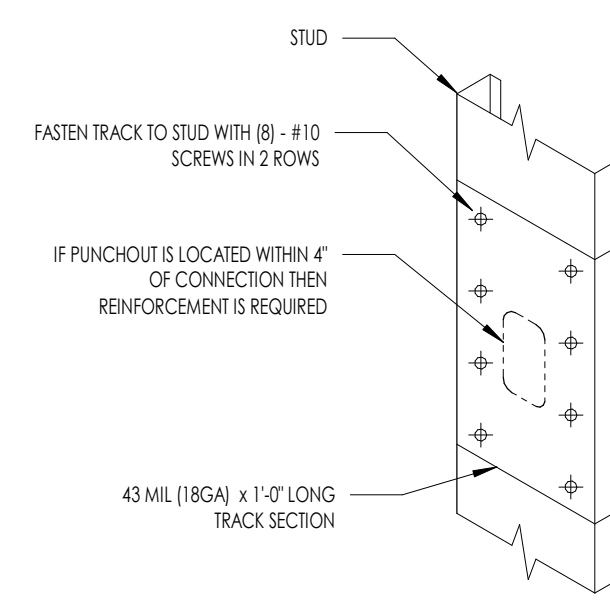
POWER ACTIVATED FASTENER SCHEDULE	
t (in)	FASTENER
3/16" ≤ t < 1/2"	X-U 19 PPH PAF
1/2" ≤ t < 3/4"	DS 27 P10 PAF

- NOTES:
- FASTENER DESCRIPTIONS, ALL FASTENERS ARE POWDER-ACTUATED FASTENERS MFRD BY HILL, INC.:
 - X-U 47
 - UNIVERSAL KNURLED SHANK FASTENER WITH A SHANK DIAMETER OF 0.157"
 - DS 47
 - HEAVY DUTY SMOOTH SHANK FASTENER WITH A SHANK DIAMETER OF 0.177"
 - FASTENER INSTALLATION SHALL FOLLOW ALL SPECIFICATIONS PER THE MFR.

1 TYPICAL COLD FORM STEEL ATTACHMENT TO STR STEEL W. PAF'S
NOT TO SCALE



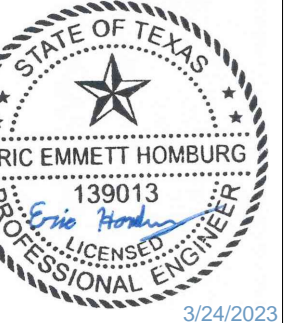
2 TYPICAL JOIST BLOCKING DETAIL
NOT TO SCALE



3 TYPICAL STUD REINFORCEMENT AT PUNCHOUT NEAR CONNECTION
NOT TO SCALE

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SUDS DELUXE CAR WASH

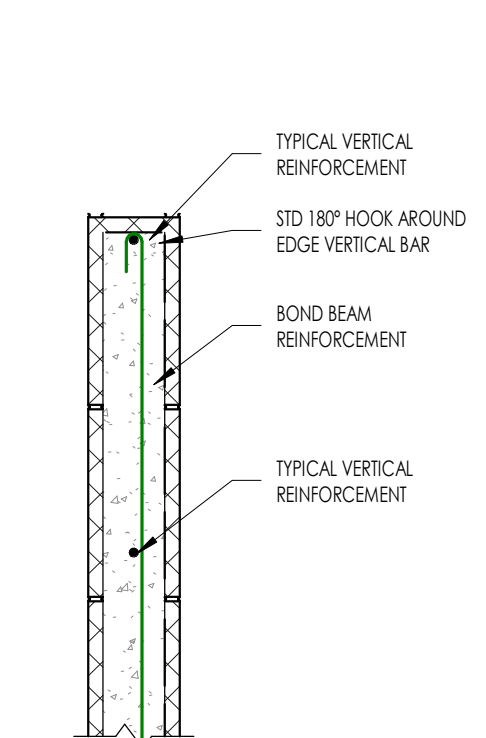
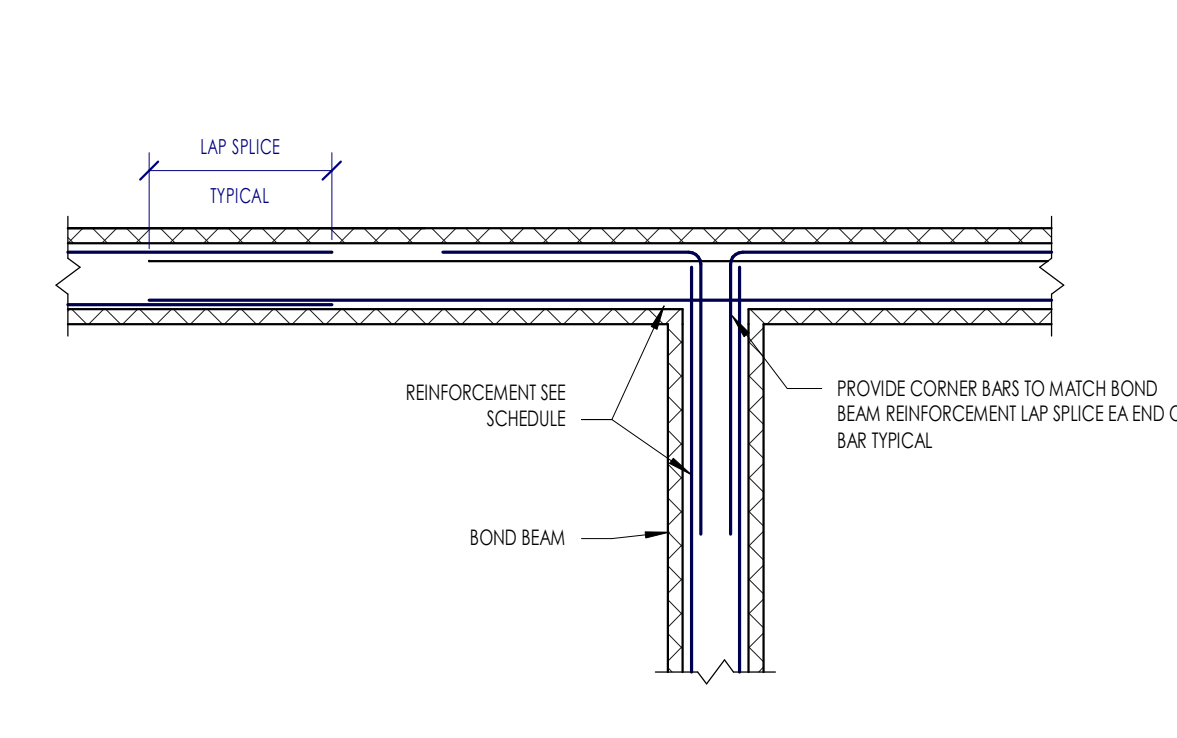
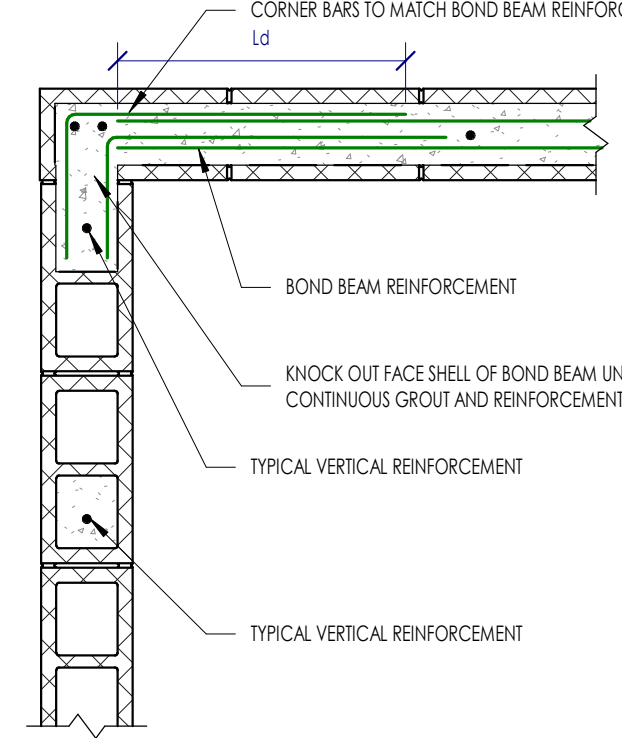
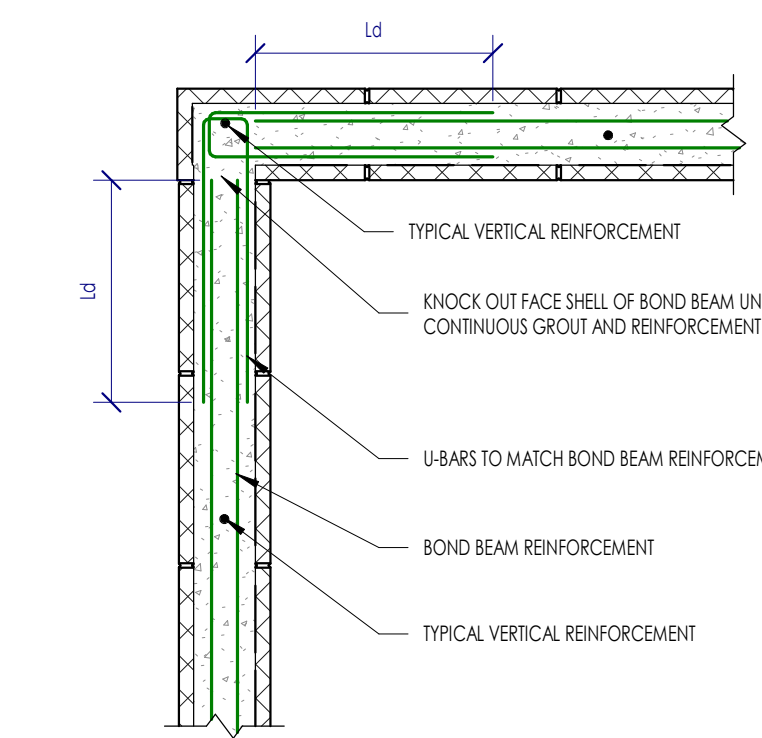
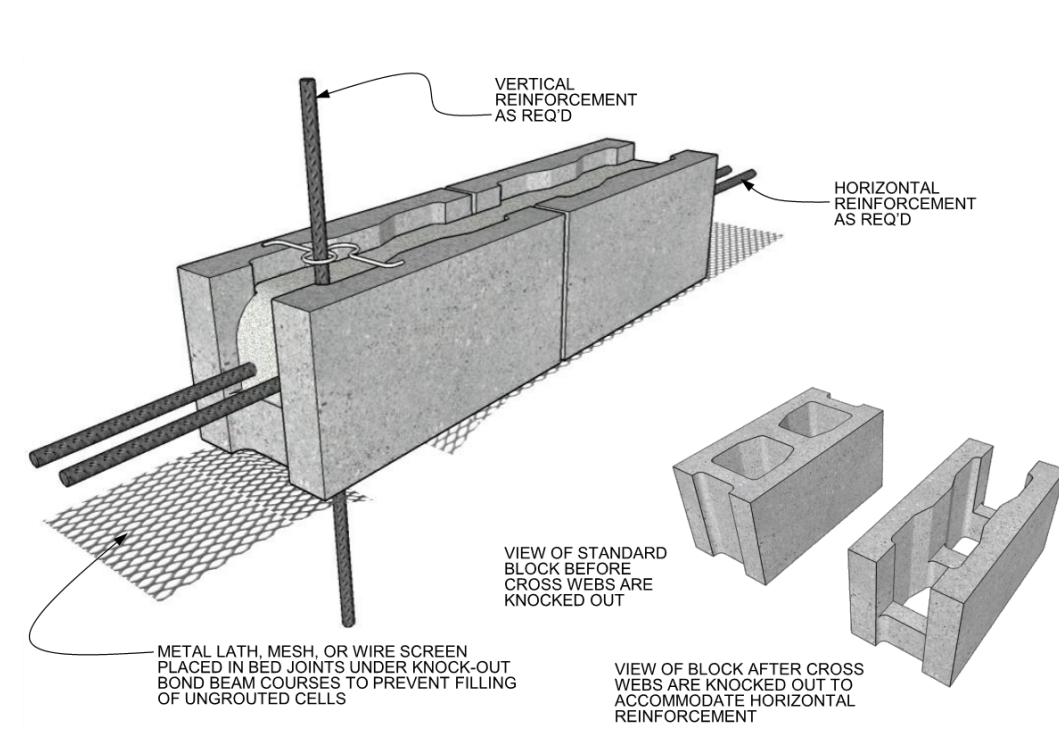
PM: C.R DE: G.S.

PROJECT:
22-00439

SHEET:
S5.0

CFS DETAILS

1111 35 AND CHISOS STREET
SAN MARCOS, TX 78666



1 BAR PER CELL - MINIMUM LAP SPICE LENGTHS				2 BARS PER CELL - MINIMUM LAP SPICE LENGTHS			
BAR SIZE	6" CMU	8" CMU	10" CMU	BAR SIZE	6" CMU	8" CMU	10" CMU
#3	16	16	16	#3	19	17	17
#4	25	21	21	#4	34	29	29
#5	40	27	26	#5	45	45	45
#6	NP	51	40	#6	NP	54	54
#7	NP	63	52	#7	NP	63	63
#8	NP	72	72	#8	NP	NP	72

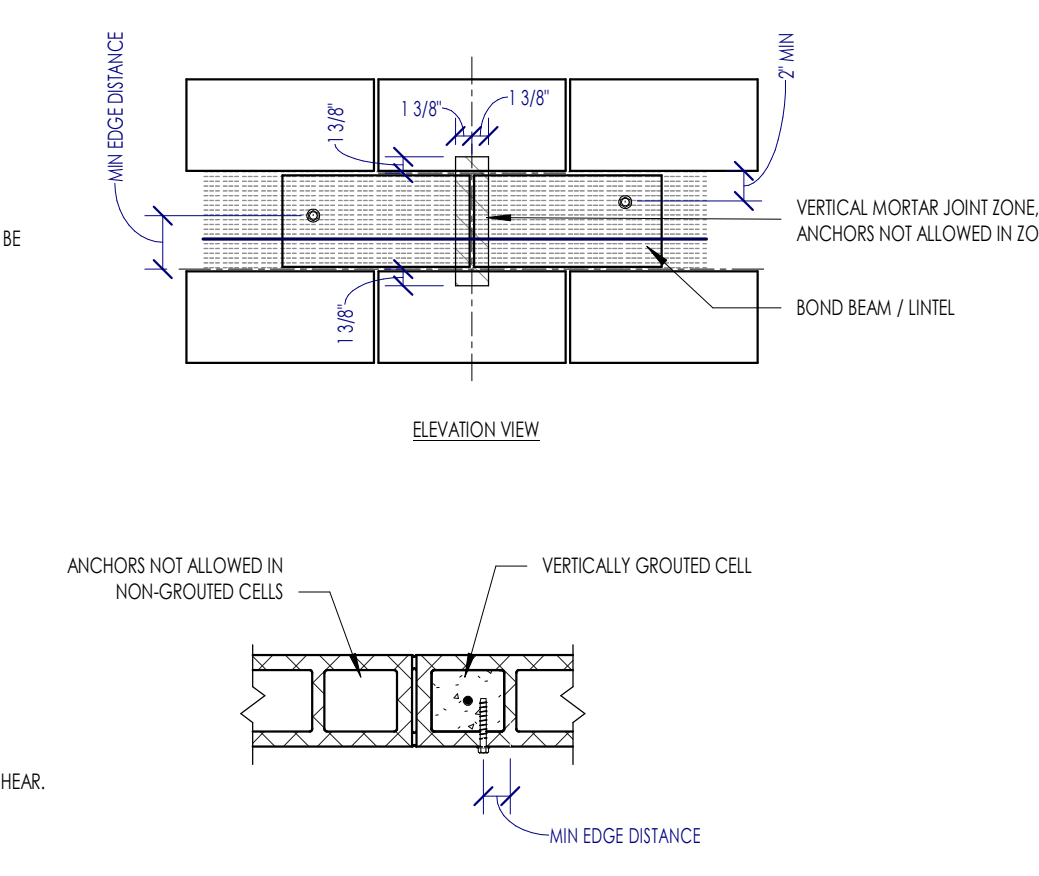
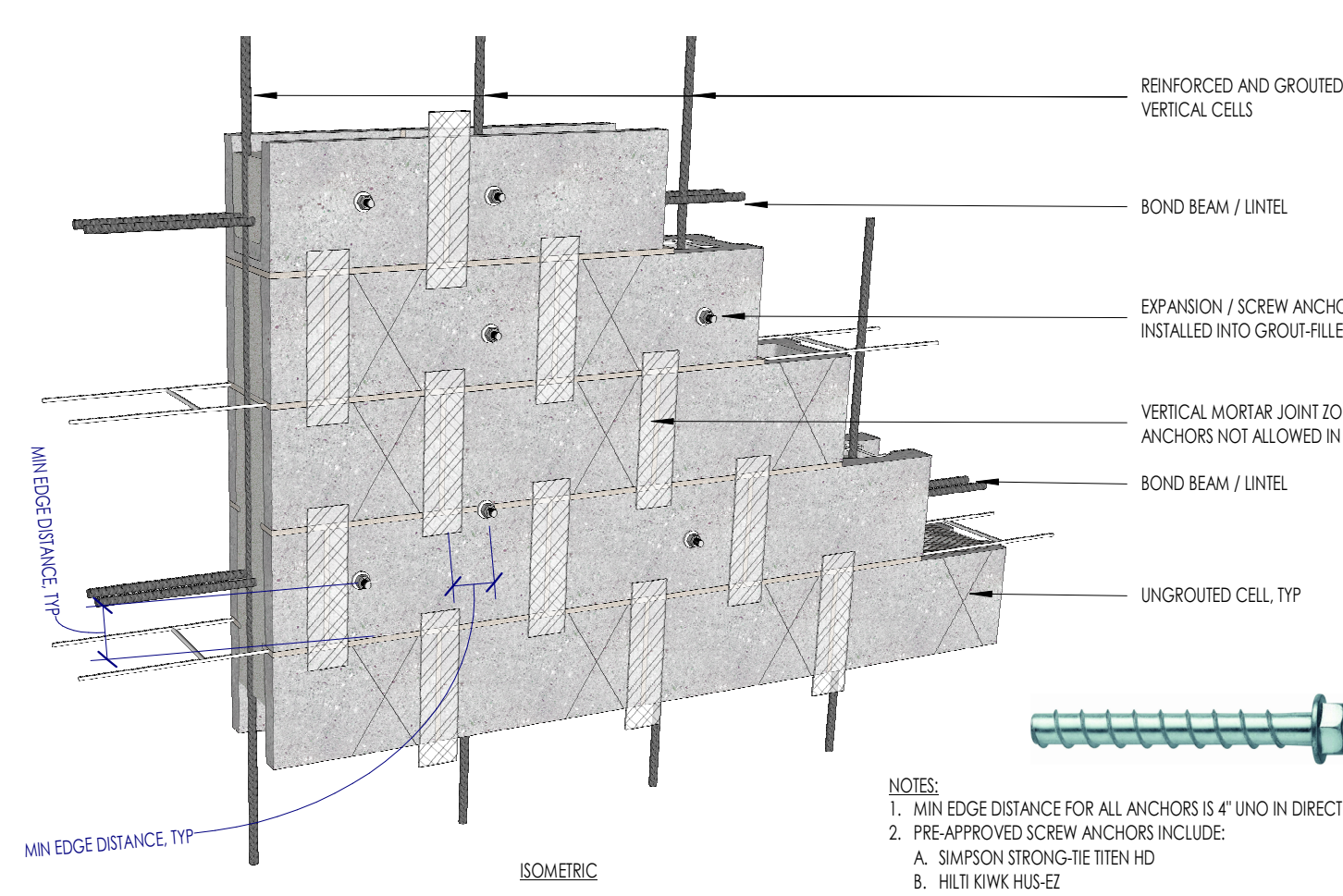
NP = NOT PERMITTED

NOTES:
 1. ALL LAP SPICE LENGTHS ARE IN INCHES.
 2. WHEN LAP SPICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR.

1 TYPICAL BOND BEAM UNITS
NOT TO SCALE

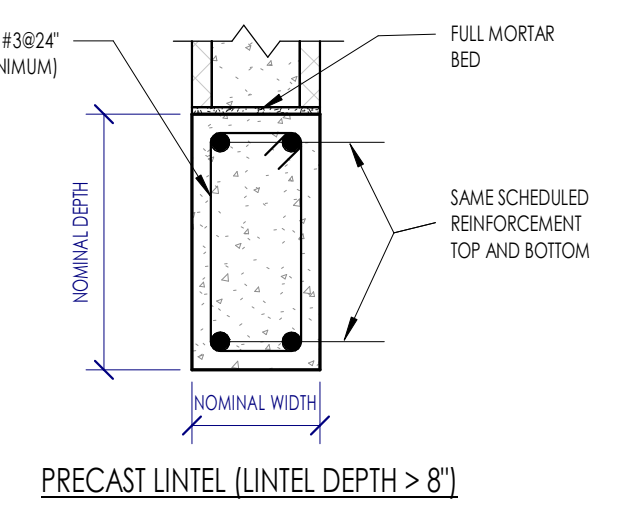
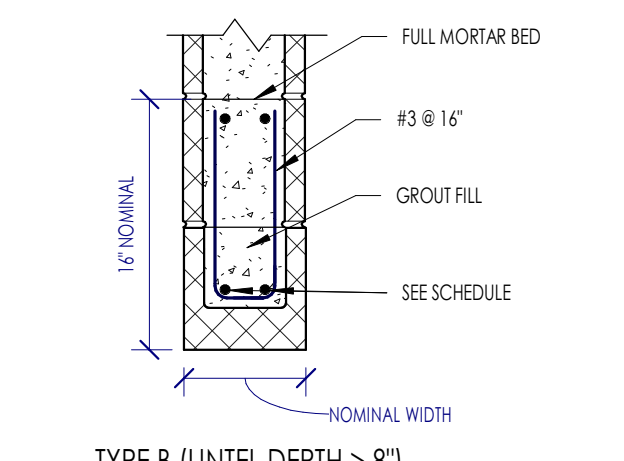
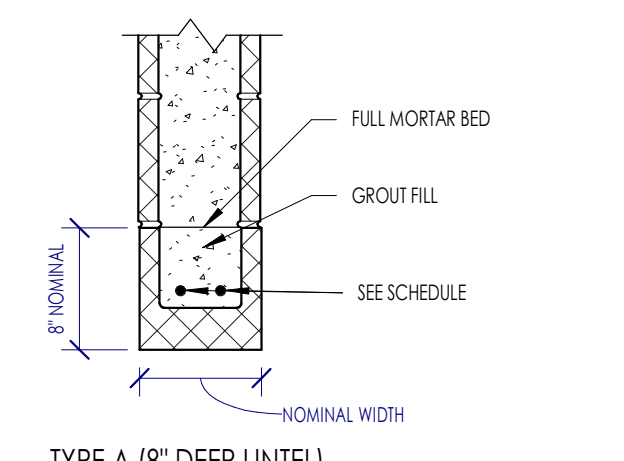
2 TYPICAL BOND BEAM CORNER DETAILS
NOT TO SCALE

3 CMU VERTICAL BAR LAP SPICE LENGTH
NOT TO SCALE



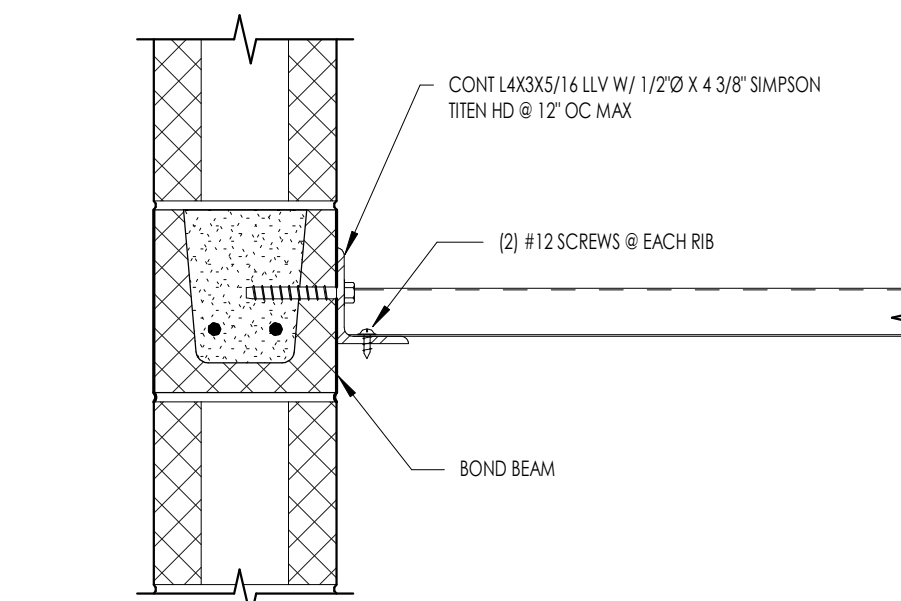
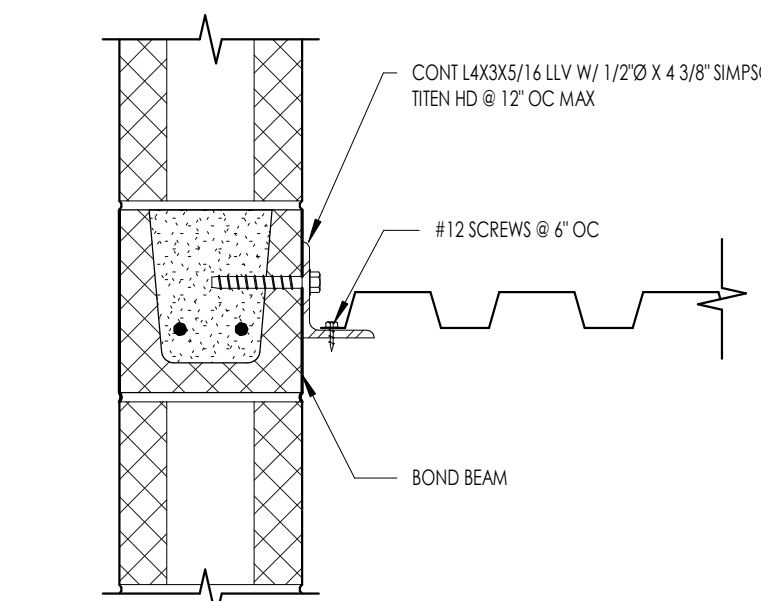
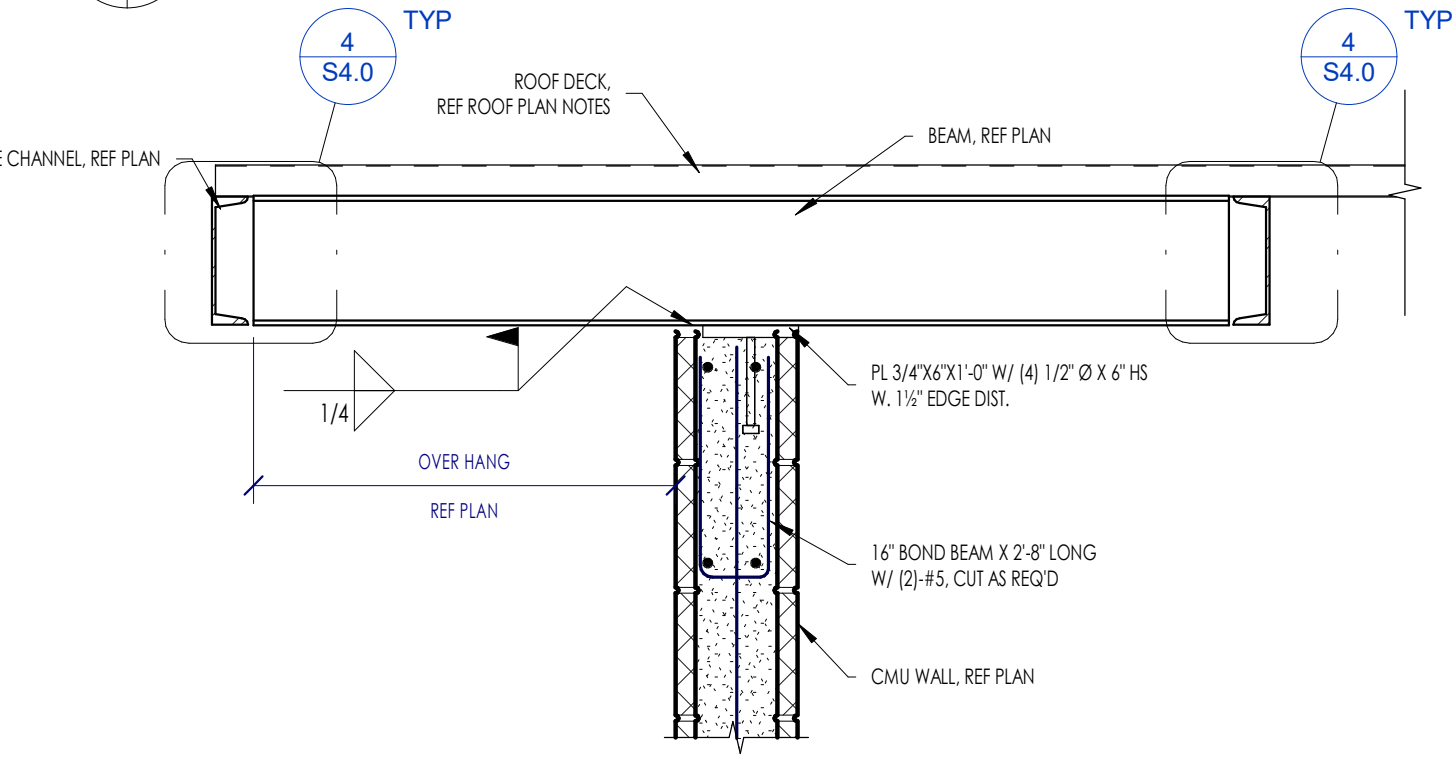
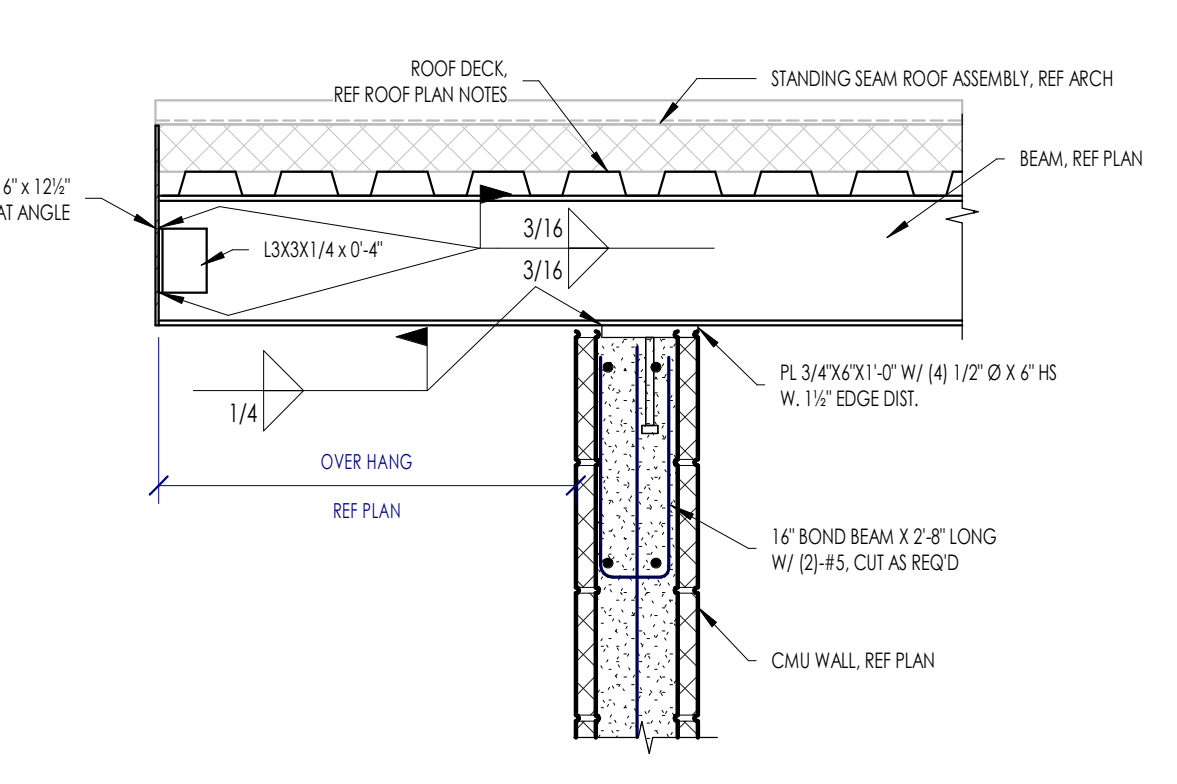
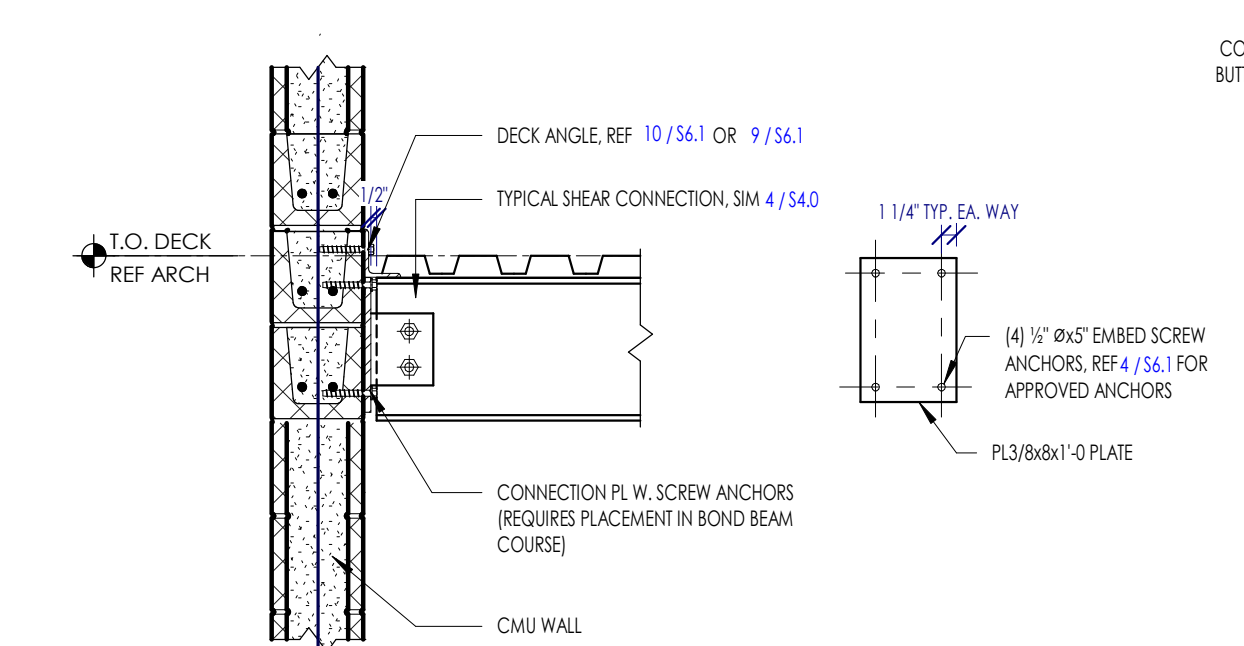
CLEAR SPAN	INTERIOR NON-LOADBEARING CMU LINTELS												
	REINFORCING REQUIREMENTS IN NOMINAL LINTEL SECTION												
3'-4"	1-#3	1-#3	UR	1-#3	UR	2-#3	UR	2-#3	UR	2-#3	UR	2-#3	UR
4'-0"	1-#3	1-#3	UR	2-#3	UR	2-#3	UR	2-#3	UR	2-#3	UR	2-#3	UR
4'-4"	1-#4	1-#4	UR	2-#3	UR	2-#3	UR	2-#4	UR	2-#4	UR	2-#4	UR
5'-4"	1-#4	1-#4	UR	2-#4	UR	2-#4	UR	2-#4	UR	2-#4	UR	2-#4	UR
6'-0"	1-#4	1-#4	UR	2-#4	UR	2-#5	UR	2-#5	UR	2-#5	UR	2-#5	UR
6'-8"	1-#5	1-#5	UR	2-#5	UR	2-#5	UR	2-#5	UR	2-#5	UR	2-#5	UR
7'-4"	NA	NA	1-#5	2-#5	2-#4	NA	2-#4	2-#6	2-#4	2-#4	2-#4	2-#4	2-#4
8'-0"	NA	NA	1-#5	NA	2-#4	NA	2-#4	NA	2-#5	2-#5	NA	2-#5	NA
8'-8"	NA	NA	1-#6	NA	2-#4	NA	2-#5	NA	2-#5	NA	2-#6	2-#5	NA
9'-4"	NA	NA	1-#6	NA	2-#5	NA	2-#5	NA	2-#6	2-#6	NA	2-#6	NA
10'-0"	NA	NA	1-#7	NA	2-#5	NA	2-#6	NA	2-#6	NA	2-#6	2-#6	NA

NOTES:
 1. DEFINITIONS:
 A. UR = UNREINFORCED WALL (NO VERTICAL REINFORCEMENT IS REQUIRED, EXCEPT AS DETAILED ON DRAWINGS AT OPENING, ETC.)
 B. NA = NOT APPLICABLE. THICKER WALL REQUIRED FOR SPAN.
 2. REFER TO ARCH FOR SIZE AND LOCATION OF OPENINGS.
 3. PROVIDE 1" OF BEARING AT EACH JAMB FOR EACH FOOT OR CLEAR SPAN BUT NOT LESS THAN 7 5/8". REINFORCEMENT SHALL PROJECT A MINIMUM OF 8" ONTO THE BEARING.
 4. MINIMUM MASONRY COMPRESSIVE STRENGTH OF GROUTED PRISM (fm) = 1500 PSI.
 5. PRECAST CONCRETE LINTELS AS SHOWN MAY BE USED WITH ARCHITECT APPROVAL. MINIMUM Fc 3000 PSI.
 6. USE FOR RUNNING BOND ONLY.
 7. FOR LINTELS FOR LOAD BEARING CMU WALLS SUPPORTING STEEL ROOF DECK, JOISTS AND BEAMS, REFER TO DETAIL 7/56.0



4 TYPICAL SCREW ANCHORS INTO GROUT-FILLED CMU
NOT TO SCALE

5 TYPICAL INTERIOR NON-LOADBEARING CMU LINTELS
NOT TO SCALE



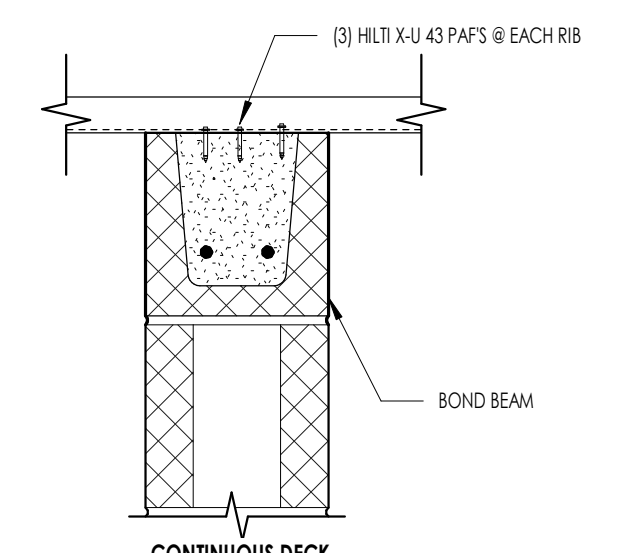
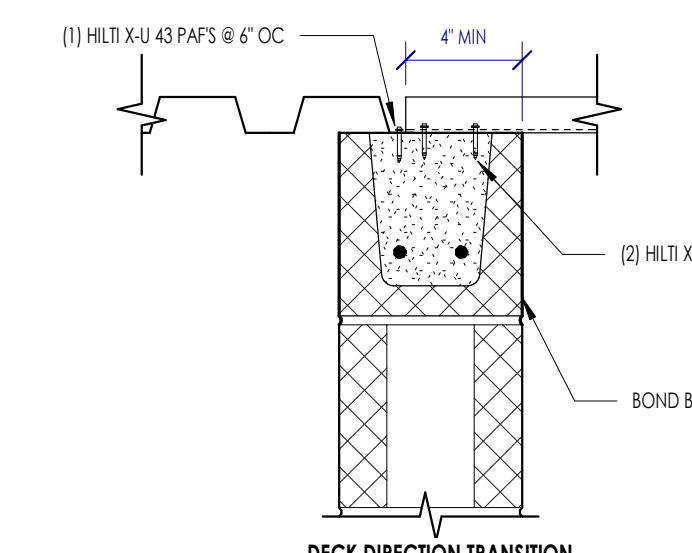
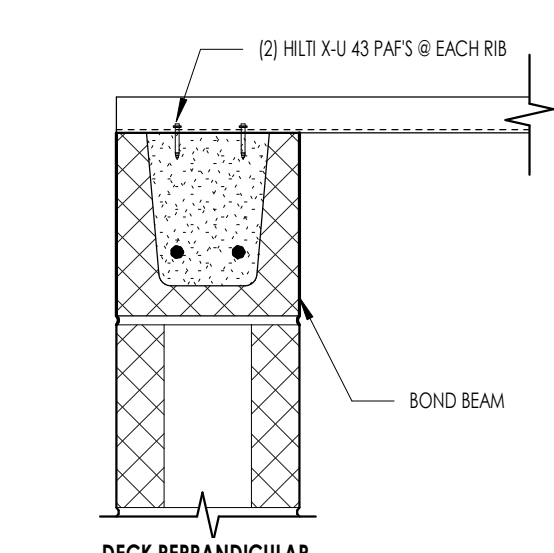
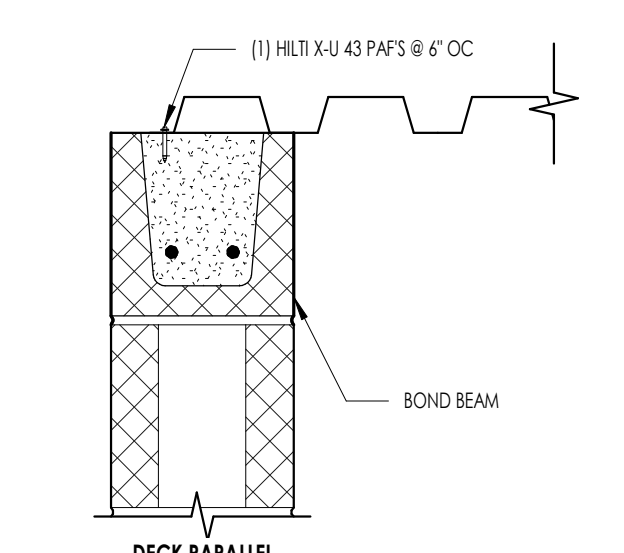
6 TYPICAL STEEL BEAM CONNECTION INTO FACE OF CMU WALL - POST INSTALLED CONNECTION
1 | S1.1 | NOT TO SCALE

7 TYPICAL STEEL FRAMING OVER CMU WALL
1 | S1.1 | NOT TO SCALE

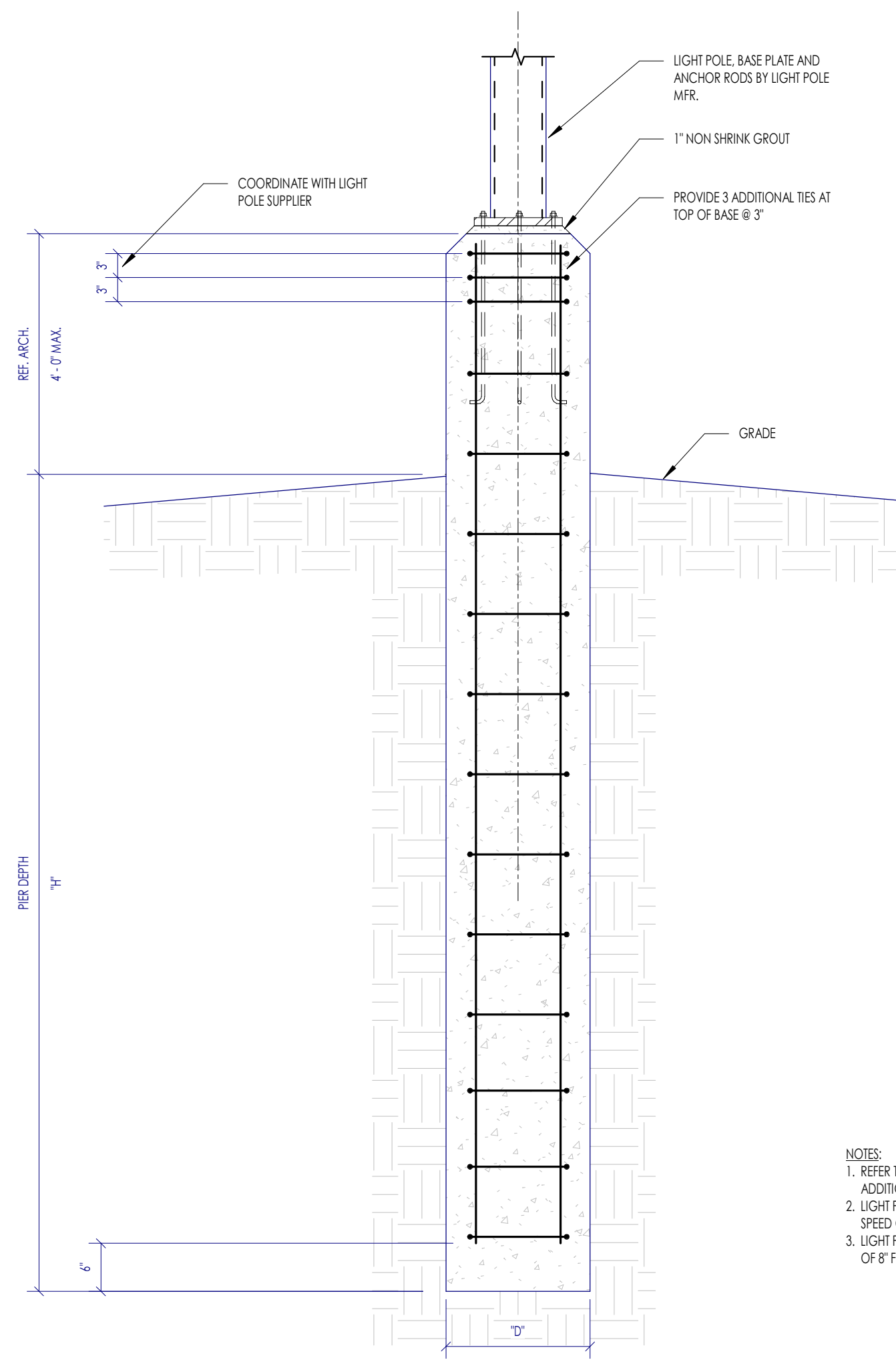
8 TYPICAL STEEL OVERHANG FRAMING AT EAST WALL
1 | S1.1 | NOT TO SCALE

9 TYPICAL ROOF DECK TO CMU WALL - DECK PARALLEL
1 | S1.1 | NOT TO SCALE

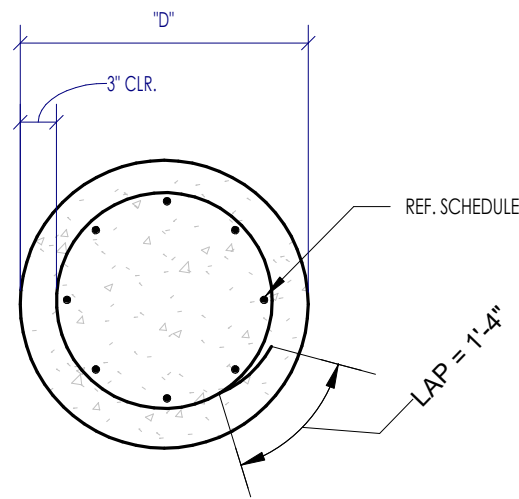
10 TYPICAL ROOF DECK TO CMU WALL - DECK PERPENDICULAR
1 | S1.1 | NOT TO SCALE



11 TYPICAL ROOF DECK TO TOP OF CMU WALL
1 | S1.1 | NOT TO SCALE



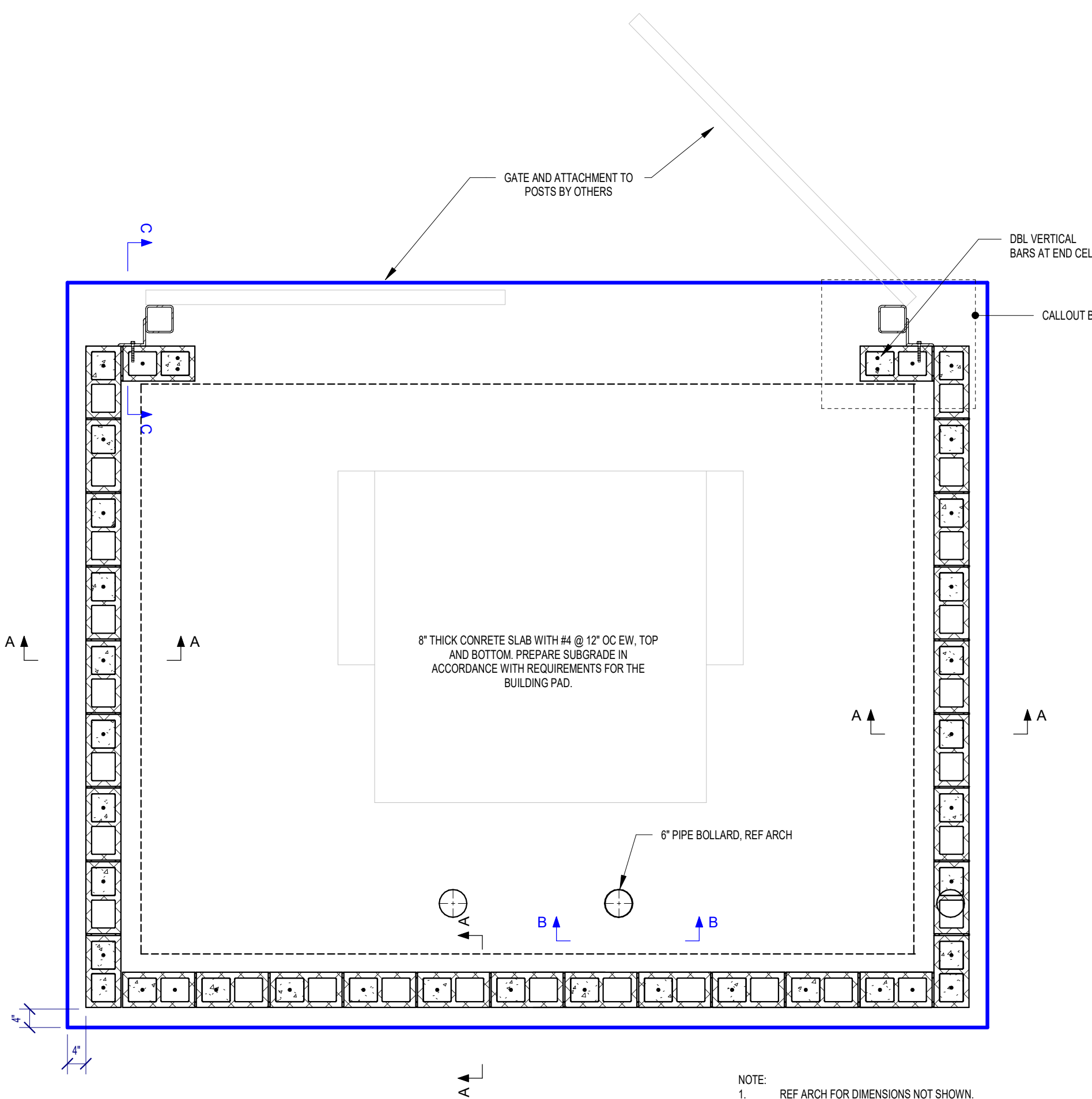
POLE TYPE	MAXIMUM POLE HEIGHT	MAXIMUM EPA (#1)	FOUNDATION SOIL TYPE	PIER DIA. 'D'	PIER DEPTH 'H'	VERTICAL REINF.	TIES
ROUND POLE	20'-0"	7	CLAY, SAND	24"	8'-6"	8-#7	#3 @ 12" O.C.
	30'-0"	10	GRAVEL, SANDY GRAVEL	24"	8'-6"	8-#7	#3 @ 12" O.C.
			CLAY, SAND	24"	10'-0"	8-#7	#3 @ 12" O.C.
SQUARE POLE	20'-0"	7	GRAVEL, SANDY GRAVEL	24"	8'-0"	8-#7	#3 @ 12" O.C.
	30'-0"	10	CLAY, SAND	24"	9'-6"	8-#7	#3 @ 12" O.C.
			GRAVEL, SANDY GRAVEL	24"	7'-6"	8-#7	#3 @ 12" O.C.
			CLAY, SAND	24"	11'-6"	8-#7	#3 @ 12" O.C.



SECTION A

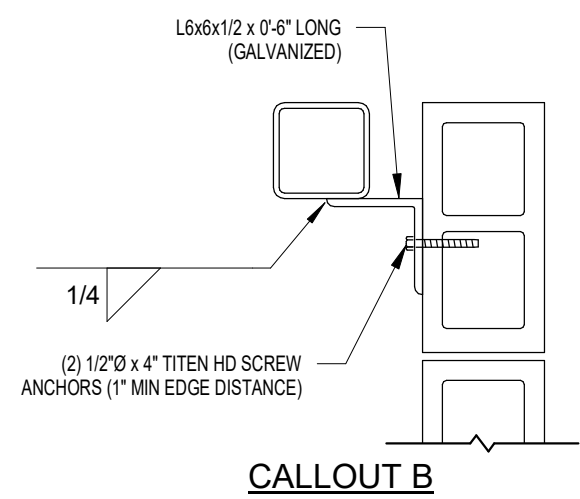
- NOTES:
- REFER TO ELECTRICAL AND LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION.
 - LIGHT POLE FOUNDATION IS DESIGNED FOR MAXIMUM ULTIMATE WIND SPEED OF 140 MPH. CONTACT FOR IF WIND SPEED EXCEEDS 140 MPH.
 - LIGHT POLE FOUNDATION IS DESIGNED FOR MAXIMUM POLE DIAMETER OF 8' FOR ROUND POLE AND MAXIMUM POLE WIDTH OF 6' FOR SQUARE POLE.

1 LIGHT POLE FOUNDATION
NOT TO SCALE

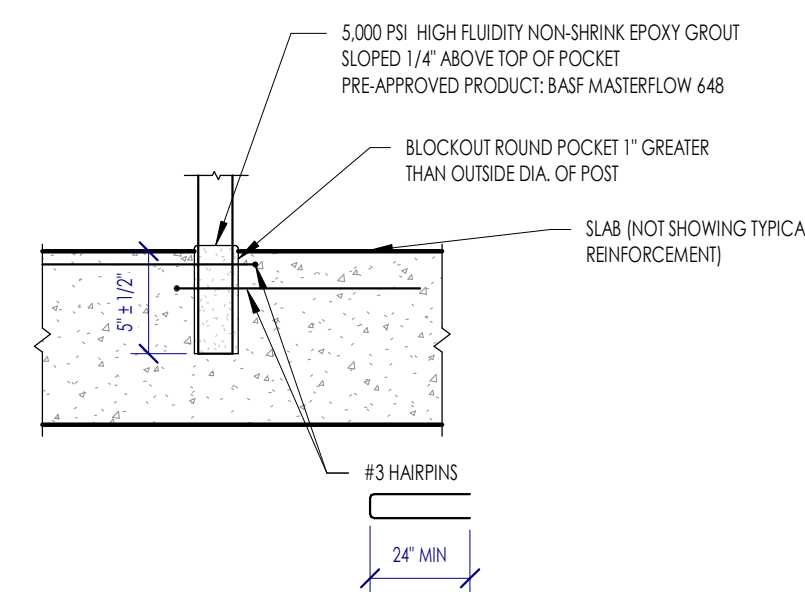


- NOTE:
- REF ARCH FOR DIMENSIONS NOT SHOWN.

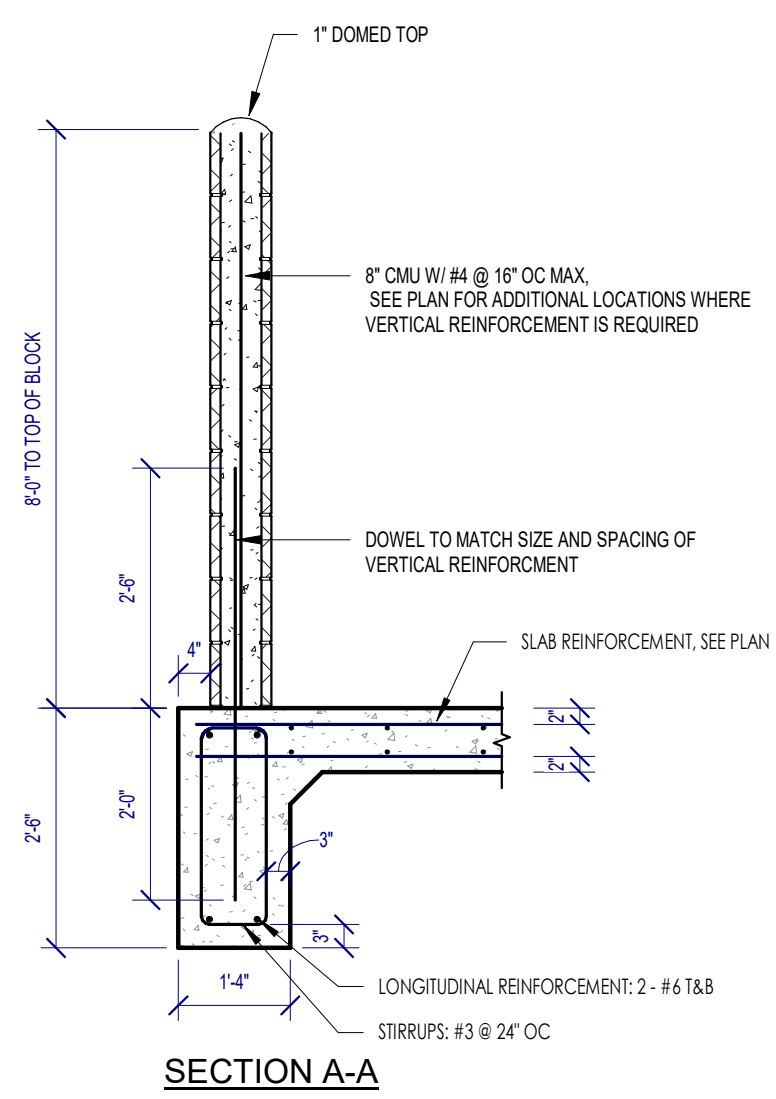
2 TYPICAL CMU TRASH ENCLOSURE
NOT TO SCALE



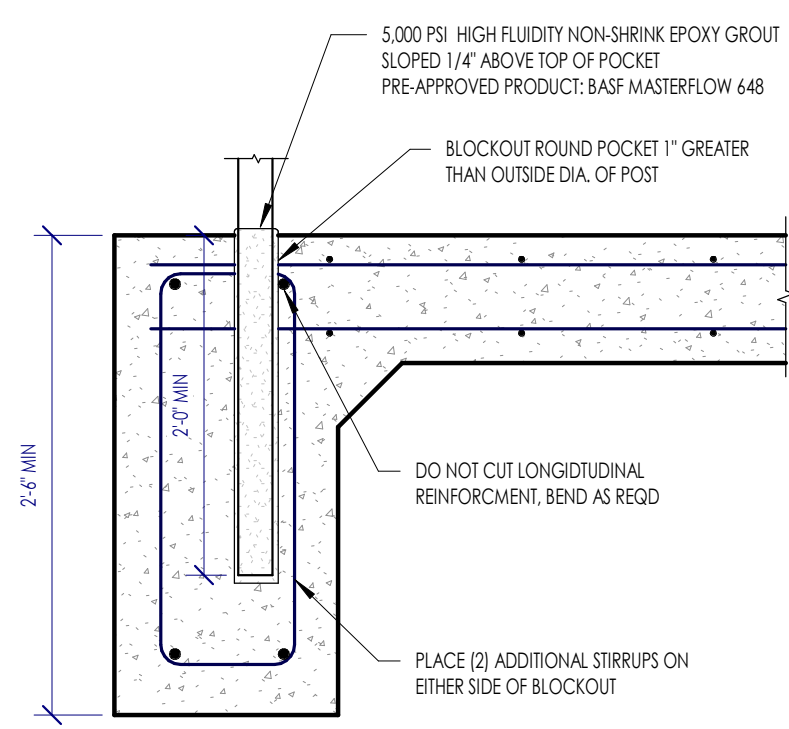
CALLOUT B



SECTION B-B

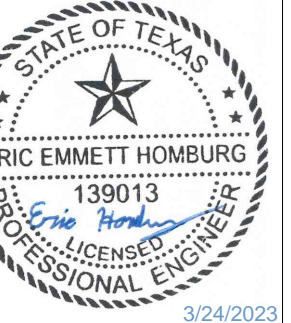


SECTION A-A



SECTION C-C

REVISIONS:
9/30/2022 ISSUED FOR PERMIT



ELECTRICAL SCOPE OF WORK

PROVIDE NEW ELECTRICAL SERVICE FOR CAR WASH. PROVIDE NEW POWER FOR CAR WASH, HVAC, AND PLUMBING EQUIPMENT.

PROVIDE POWER AND DATA DEVICES. PROVIDE LIGHTING FIXTURES AND CONTROLS.

APPLICABLE CODES AND STANDARDS

ALL ELECTRICAL MATERIALS, INSTALLATION, TESTING, CLEANING, SUPPORTS, AND WORKMANSHIP SHALL BE IN STRICT ACCORDANCE WITH THE BELOW LISTED APPLICABLE CODES INCLUDE BUT ARE NOT LIMITED TO:

2015 INTERNATIONAL BUILDING CODE
2014 NATIONAL ELECTRICAL CODE
2015 INTERNATIONAL FIRE CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE (PER STATE OF TEXAS ADOPTION)

ELECTRICAL SHEET LIST	
SHEET NUMBER	SHEET NAME
E-001	ELECTRICAL LEGENDS
E-002	ELECTRICAL NOTES
E-003	ELECTRICAL SPECIFICATIONS
E-101	ELECTRICAL SITE PLAN
E-201	ELECTRICAL POWER PLAN
E-202	ELECTRICAL EQUIPMENT PLAN
E-301	ELECTRICAL LIGHTING PLAN
E-401	ELECTRICAL ENLARGED PLANS
E-501	ELECTRICAL ONE LINE DIAGRAM
E-511	ELECTRICAL DETAILS
E-601	ELECTRICAL SCHEDULES I
E-602	ELECTRICAL SCHEDULES II

FIXTURE TAG LEGEND	
A,a PANEL-##	
A (UPPER CASE LETTER) - DENOTES FIXTURE TYPE a (LOWER CASE LETTER) - DENOTES SWITCH LEG PANEL (PANEL NAME) - DENOTES PANEL NAME ## (CIRCUIT NUMBER) - DENOTES CIRCUIT NUMBER	
LIGHTING CONTROL TAG LEGEND	
A,a	
A (UPPER CASE LETTER) - DENOTES CONTROL TYPE a (LOWER CASE LETTER) - DENOTES SWITCH LEG	

LEGEND NOTES:
1. MULTI-ZONE SWITCHES WITH MULTIPLE DISCTINCT SWITCH LEGS INDICATED IN THE LIGHTING CONTROL TAG VIA MULTIPLE LOWER CASE LETTERS SEPERATED BY COMMAS.

LIGHTING CONTROLS LEGEND	
⊕ OS	WATTSTOPPER WALL SWITCH VACANCY SENSOR. MODEL #DSW-301. VACANCY SENSOR PROVIDES UP TO 600 SQ. FT. OF COVERAGE. PROVIDE APPROPRIATE ACCESSORIES AS NEEDED.
⊕ OSD	WATTSTOPPER WALL SWITCH VACANCY SENSOR WITH DIMMING. MODEL #DW-311. OCCUPANCY SENSOR PROVIDES UP TO 600 SQ. FT. OF COVERAGE. PROVIDE APPROPRIATE ACCESSORIES AS NEEDED.
⊕ LV	WATTSTOPPER DIGITAL WALL SWITCH. MODEL #LMSW-10# PROVIDE NUMBER OF ZONES TO MATCH NUMBER OF SPECIFIED SWITCH ZONES. COORDINATE EXACT SPEC WITH OWNER PRIOR TO PURCHASE. PROVIDE APPROPRIATE POWER PACKS AND OTHER WATTSTOPPER ACCESSORIES AS NEEDED.
⊕ LVD	WATTSTOPPER DIGITAL WALL SWITCH WITH DIMMING. MODEL #LMDM-101. PROVIDE SWITCH FOR EACH LIGHTING ZONE. PROVIDE NUMBER OF ZONES TO MATCH NUMBER OF SPECIFIED SWITCH ZONES. COORDINATE EXACT SPEC WITH OWNER PRIOR TO PURCHASE. PROVIDE APPROPRIATE POWER PACKS AND OTHER WATTSTOPPER ACCESSORIES AS NEEDED.
⊕ OS	WATTSTOPPER CEILING MOUNTED VACANCY SENSOR. MODEL #LMDC-100. PROVIDES UP TO 2,500 SQ. FT. OF COVERAGE. PROVIDE APPROPRIATE POWER PACKS AND OTHER WATTSTOPPER ACCESSORIES AS NEEDED.
W	WATTSTOPPER WIDE VIEW VACANCY SENSOR. DESIGNED TO MOUNT IN CORNER. MODEL #LMDX-100. PROVIDES DETECTION UP TO 40 FT. FROM SENSOR. PROVIDE APPROPRIATE POWER PACKS AND OTHER WATTSTOPPER ACCESSORIES AS NEEDED.
H	WATTSTOPPER HALLWAY OCCUPANCY SENSOR. MODEL #LMUC-100. PROVIDES DETECTION UP TO 130 FT. FROM SENSOR. PROVIDE APPROPRIATE POWER PACKS AND OTHER WATTSTOPPER ACCESSORIES AS NEEDED.
⊕ PS	WATTSTOPPER PHOTOCELL SENSOR. MODEL #LMLS-400. PROVIDES AUTOMATIC DIMMING OF FIXTURES IN DAYLIGHT ZONE INDICATED. PROVIDE APPROPRIATE POWER PACKS AND OTHER LIGHT ACCESSORIES AS NEEDED.
⊕	DAYLIGHTING ZONE. PROVIDE PHOTOCELL SENSOR. ALL FIXTURES WITHIN ZONE SHALL BE AUTOMATICALLY DIMMED AS DAYLIGHT LEVELS RISE.

NOTES:
1. ALL OCCUPANCY SENSORS SHALL BE CALIBRATED AND SETTINGS ADJUSTED BY THE E.C. ALL OCCUPANCY SENSORS SHALL HAVE THE TIME DELAY SET TO THE MAXIMUM SETTING.
2. ALL OCCUPANCY SENSORS SHALL PASS NEMA WD7 TESTING.
3. REFER TO LIGHTING CONTROL SCHEDULE FOR MORE INFORMATION. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE, OPERATIONAL AND CODE COMPLIANT LIGHTING CONTROL SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL WIRING, CABLING, DEVICES, COMPONENTS, ETC. AS REQUIRED BY THE MANUFACTURER. REFER TO INSTALLATION MANUALS AND WIRING DIAGRAMS PROVIDED BY THE MANUFACTURER.
4. THE BASIS OF DESIGN FOR LIGHTING CONTROLS IS LEGRAND WATTSTOPPER. ANY ADDITIONAL COST INCURRED BY AN APPROVED SUBSTITUTION (INCLUDING ENGINEERING COSTS OF REDESIGN) WILL BE AT CONTRACTOR'S EXPENSE.
5. PRODUCTS BY LEVITON, GREENGATE AND/OR NLIGHT THAT ARE EQUIVALENT TO WATTSTOPPER ARE ACCEPTABLE.
6. **FOR SUBMITTALS:** SUBMIT DIMENSIONED DRAWINGS OF LIGHTING CONTROL SYSTEM AND ACCESSORIES INCLUDING, BUT NOT LIMITED TO: RELAY PANELS, SWITCHES, PHOTOCELLS, CONTROLLERS AND OTHER INTERFACES. SHOP DRAWINGS SHALL INDICATE LOCATION OF EACH DEVICE OR AN RFI TO CONFIRM LOCATION. PLANS ARE FLOOR PLAN DIAGRAMS. "CUT SHEET" SUBMITTAL NOT ACCEPTABLE. SUBMIT A ONE-LINE DIAGRAM OF THE SYSTEM CONFIGURATION INDICATING THE TYPE, SIZE AND NUMBER OF CONDUCTORS BETWEEN EACH COMPONENT IF IT DIFFERS FROM THAT ILLUSTRATED IN THE RISER DIAGRAM IN THESE SPECIFICATIONS. SUBMITTALS THAT SHOW TYPICAL RISER DIAGRAMS ARE NOT ACCEPTABLE.

ELECTRICAL LEGEND	
ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED IN THIS PROJECT	
(E) —	EXISTING
(R) —	RELOCATED
(N) —	NEW
(D) —	DEMO
□	NEW OR RELOCATED LIGHT FIXTURE. LETTER INDICATES TYPE. REFER TO LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION.
■	NEW EMERGENCY LIGHT FIXTURE. PROVIDE WITH EMERGENCY POWER SOURCE. REFER TO LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION.
↔	EXIT LIGHT. PROVIDE DIRECTIONAL CHEVRON(S) ARROW(S) AS INDICATED ON PLANS. PROVIDE WITH INTEGRAL BATTERY PACK UNO. CONNECT TO UNSWITCHED POWER LEADS.
⊕	SINGLE POLE SWITCH
⊕ M	MANUAL MOTOR STARTER WITH PROPER THERMAL ELEMENT INSTALLED
⊕ MC	SWITCH, THREE-WAY MOMENTARY CONTACT TOGGLE TYPE WITH CENTER NEUTRAL POSITION. SIMILAR TO ASCO # 173A2.
⊕	DUPLEX RECEPTACLE. 20AMP, 125VOLT, 2POLE, 3WIRE, GROUNDING TYPE, NEMA 5-20R UNO.
⊕	DOUBLE (QUAD) DUPLEX RECEPTACLE WITH COMMON COVER PLATE. SIMILAR TO DUPLEX RECEPTACLE.
⊕ GFI	GROUND FAULT INTERRUPTOR (GFI) DUPLEX RECEPTACLE. SIMILAR TO DUPLEX RECEPTACLE ABOVE.
⊕ WP	WEATHERPROOF (WP) DUPLEX RECEPTACLE. SIMILAR TO DUPLEX RECEPTACLE ABOVE.
⊕ GFIWP	GROUND FAULT INTERRUPTOR (GFI) & WEATHERPROOF (WP) DUPLEX RECEPTACLE. SIMILAR TO DUPLEX RECEPTACLE ABOVE.
⊕	DEDICATED RECEPTACLE. PROVIDE GRAY COLOR (CONFIRM W/ ARCHITECT) RECEPTACLE AND COVER PLATE. WITH INTENDED USAGES OF RECEPTACLES ENGRAVED ON COVERPLATE (E.G. "COPIER"). ELECTRICIAN SHALL CONFIRM RECEPTACLE TYPE REQUIRED WITH OWNER/EQPM VENDOR PRIOR TO INSTALL.
▽	DATA OUTLET. PROVIDE BACK BOX/COVER PLATE. INSTALL 3/4". WITH BUSHING AND PULL STRING. STUBBED TO ACCESSIBLE CEILING.
⊕	POKE-THRU OR RECESSED FLOOR BOX FOR POWER AND DATA. TYPE SPECIFIED ON PLANS.
⊕	CEILING MOUNTED DUPLEX RECEPTACLE, 20AMP, 125VOLT, 2POLE, 3WIRE, GROUNDING TYPE, NEMA 5-20R UNO.
⊕	JUNCTION BOX.
□	ELECTRICAL PANEL BOARDS.
□	DISCONNECT SWITCH. ALL SWITCHES SHALL BE HEAVY DUTY TYPE (E.G. 30A/3P/600NF/NEMA 1)
—	CONDUIT RUN CONCEALED IN WALL OR CEILING
---	CONDUIT RUN CONCEALED IN FLOOR
---	UNDERGROUND CONDUIT
—	HOMERUN TO ELECTRICAL PANELBOARDS

LEGEND NOTES:
1. THE WORD "PROVIDE" AS USED IN THESE DRAWINGS SHALL MEAN "MATERIALS AND LABOR FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR".

ELECTRICAL ABBREVIATIONS	
(D)	DEMO
(E)	EXISTING
(N)	NEW
(R)	RELOCATE
(RM)	REMOVE EXISTING EQUIPMENT
(RD)	RELOCATED EQUIPMENT
AC	ALTERNATING CURRENT
AF	AMPERE FUSE
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CKT	CIRCUIT
CLG	CEILING
CT	CURRENT TRANSFORMER
CU	COPPER
DISC.	DISCONNECT
DIST.	DISTRIBUTION
DOL	DIRECT-ON-LINE
EA	EACH
E.C.	ELECTRICAL CONTRACTOR
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATION PANEL
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FTL	FEED THRU LUGS
G.C.	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTER
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
HP	HORSEPOWER
IDF	INTERMEDIATE DISTRIBUTION FRAME
I.P.S.	INVERTER POWER SYSTEM
JB	JUNCTION BOX
KVA	KILO-VOLT-AMPERE
KW	KILOWATT
LAN	LOCAL AREA NETWORK
LTS	LIGHTS
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MDF	MAIN DISTRIBUTION FRAME
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSED
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OC	OVERCURRENT
OC P	OVERCURRENT PROTECTION
P	POLE
PA	PUBLIC ADDRESS
PB	PUSH BUTTON
PH	PHASE
PNL	PANEL
RCPT	RECEPTACLE
REC	RECEPTACLE
RECP	RECEPTACLE
REQ'D	REQUIRED
SN	SOLID NEUTRAL
SPECS	SPECIFICATIONS
SPKR	SPEAKER
SWBD	SWITCHBOARD
SWGDR	SWITCHGEAR
TEL	TELEPHONE
TTB	TELEPHONE TERMINAL BOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP.	TYPICAL
UC, U/C	UNDER COUNTER
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERE
VSD	VARIABLE SPEED DRIVE
W	WATT OR WIRE
WI	WITH
W/O	WITHOUT
WP	WEATHER-PROOF
XFMR	TRANSFORMER
XFR	TRANSFER

SUDS DELUXE CAR WASH

PM: JDP DE: JDP

PROJECT:
792208473

SHEET:

E-001
ELECTRICAL
LEGENDS

METHOD architecture
 2118 LAMAR, SUITE 200
 HOUSTON, TEXAS 77003
 (713) 842-7500

REVISIONS:	
105-305-24	ISSUE FOR PERMIT
A 105-305-24	IFC

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 Texas Registered Engineering Firm F-10573

2015 IECC

A COMMISSIONING PLAN MUST BE DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY. THE PLAN SHALL INCLUDE THE FOLLOWING ITEMS:

- A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING.
- A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
- FUNCTIONS TO BE TESTED.
- CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED.
- MEASURABLE CRITERIA FOR PERFORMANCE

LIGHTING COMMISSIONING NOTES

- LIGHTING SYSTEM COMMISSIONING ACTIVITIES INCLUDE BUT SHALL NOT BE LIMITED TO:
 - SUBMITTAL REVIEWS
 - FIELD OBSERVATION
 - ENSURE ALL FIXTURES HAVE LAMPS AND ARE OPERATIONAL
 - TEST EMERGENCY LIGHTING (INCLUDING EXIT SIGNS)
 - ENSURE ALL OCCUPANCY & DAYLIGHT SENSORS HAVE BEEN INSTALLED PER THE MANUFACTURERS INSTRUCTIONS AND ARE OPERATING AS INTENDED.
 - VERIFY STATUS INDICATORS ON DEVICES ARE CORRECT.
 - CONFIRM SWITCHES AND DEVICES CONTROL LIGHT FIXTURES AS INDICATED ON THE DRAWINGS.
- THE LIST OF COMMISSIONED SYSTEMS INCLUDES, BUT SHALL NOT BE LIMITED TO:
 - LIGHT FIXTURES
 - EXIT SIGNS
 - EMERGENCY EGRESS LIGHTING
 - OCCUPANCY SENSORS
 - DAYLIGHT SENSORS
 - TIME-CLOCK & TIME-SWITCH CONTROLS
 - DIMMER SYSTEMS
 - BAS INTERFACE
- DOCUMENTATION CERTIFYING THE INSTALLED LIGHTING CONTROLS MEET DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405.2 AND TESTING CRITERIA OF SECTION C408.3 OF THE IECC ARE TO BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF THE RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

FIRE ALARM SYSTEM

FIRE ALARM SYSTEM DESIGN (DEVICES AND LAYOUT) ARE BY THE FIRE ALARM CONTRACTOR.

FIRE ALARM SYSTEM CONSTRUCTION DOCUMENTS FOR THE SCOPE OF WORK INDICATED IN THIS PROJECT SHALL BE SUBMITTED TO THE CITY OF **SAN MARCOS** FOR APPROVAL PRIOR TO COMMENCING FIRE ALARM WORK AND THE INSTALLATION MUST BE APPROVED BY THE CITY AND LOCAL AUTHORITY HAVING JURISDICTION AFTER COMPLETION.

1. AN EXISTING FIRE ALARM SYSTEM IS IN PLACE. REUSE ALL EXISTING DEVICES WHERE PRACTICAL AND PROVIDE NEW DEVICES MATCHING EXISTING DEVICES WHERE NECESSARY. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS. COORDINATE DEVICE LOCATIONS WITH ARCHITECTURAL DRAWINGS. SUBMIT SHOP DRAWINGS AND SEQUENCE OF OPERATIONS TO ENGINEER FOR REVIEW.
2. THE FIRE ALARM SYSTEM MODIFICATIONS FOR THIS PROJECT SHALL BE DESIGNED BY A LICENSED FIRE ALARM CONTRACTOR AND BE IN ACCORDANCE WITH NFPA 72 & 101 AND CITY BUILDING CODE. CONTRACTOR IS RESPONSIBLE FOR SUBMISSION OF PLANS TO THE CITY FOR APPROVAL AND ALL ASSOCIATED FEES.
3. ALL 120V CIRCUITS REQUIRED FOR THE OPERATION OF THE FIRE ALARM SYSTEM SHALL BE INCLUDED. LOCATIONS OF ALL PANELS AND BOOSTERS SHALL BE COORDINATED WITH ARCHITECT. CONTRACTOR SHALL TEST THE SYSTEM IN THE PRESENCE OF LOCAL AUTHORITIES AND MAKE ALL REQUIRED MODIFICATIONS AND ADDITIONS TO HIS DESIGN AT NO ADDITIONAL COST.

POWER GENERAL NOTES

- A. REMOVE ALL UNUSED CABLING, WIRE AND CONDUIT IN THIS SPACE. TERMINATE CONDUITS OUTSIDE ELECTRICAL ROOM WITH A JUNCTION BOX, TURN BREAKER OFF AND UPDATE PANEL DIRECTORY TO INDICATE SPARE BREAKER AND DATE OF CHANGE.
- B. COORDINATE LOCATIONS OF ALL DEVICES AND JUNCTION BOXES WITH THE EQUIPMENT INSTALLER.
- C. CONTRACTOR SHALL NOT INSTALL MORE THAN THREE CIRCUITS (3 PHASE WIRES, 1 NEUTRAL + 1 GROUND) IN A COMMON CONDUIT, EXCEPT WHERE SPECIFICALLY NOTED AND ALLOWED, WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS (EXAMPLES: 3 PHASE WIRES + 1 CURRENT CARRYING NEUTRAL CONDUCTOR) ARE INSTALLED IN A COMMON CONDUIT, THE AMPACITY OF ALL CURRENT-CARRYING CONDUCTORS SHALL BE DERATED PER 2020 NEC ARTICLE 310.15 (B)(3)(A). PROVIDE COMMON TRIP BREAKERS FOR MULTIWIRE CIRCUITS PER NEC ARTICLE 210.4 (B).

LIGHTING GENERAL NOTES

- A. REFER TO ARCH. REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL FIXTURES
- B. VERIFY COLOR OF ALL FIXTURES WITH ARCHITECT/OWNER
- C. DRAWINGS DO NOT SHOW DETAILS OF FIXTURE MOUNTING. ELECTRICAL CONTRACTOR TO PROVIDE ALL NECESSARY AND REQUIRED MOUNTING HARDWARE AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM. SLOPED CEILING: PROVIDE SLOPED-CEILING ADAPTORS AS REQUIRED FOR ALL FIXTURES INSTALLED IN SUCH CEILING.
- D. ALL 2"x4" FIXTURES SUPPORTED BY FRAMING MEMBER BY MECHANICAL MEANS, SUCH AS BOLTS, SCREWS, OR RIVETS. CLIPS IDENTIFIED FOR USE WITH THE TYPE OF CEILING FRAMING MEMBER(S) AND FIXTURE(S) SHALL BE PERMITTED. ALL FOUR SIDES OF FIXTURES SHALL BE FASTENED TO CEILING FRAMING MEMBERS. REFERENCE N.E.C. ARTICLE 410-36(B).
- E. ACCEPTABLE LAMP MANUFACTURERS: MATCH BASE BUILDING STANDARDS. ACCEPTABLE BALLAST MANUFACTURERS: MATCH BASE BUILDING STANDARDS.
- F. ALL LAMPS ARE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE (THIS APPLIES TO ALL NEW FIXTURES). REPLACE ALL BURNT OUT OR DEFECTIVE LAMPS AND BALLAST WITHIN 6 MONTHS AFTER ACCEPTANCE OF SUBSTANTIAL COMPLETION AT NO ADDITIONAL COST TO THE OWNER (THIS APPLIES TO NEW FIXTURES ONLY, NOT REUSED/EXISTING FIXTURES).
- G. ALL FIXTURES SHALL BE FACTORY PAINTED-AFTER-FABRICATION TYPE.
- H. IN GENERAL, ALL FIXTURES IN AREAS WITH LAY-IN CEILING ARE CONNECTED USING EMT CONDUIT AND 6-FT (MAXIMUM LENGTH) FIXTURE WHIP. ON PLAN DRAWINGS, FIXTURE CIRCUITING AND CONNECTION ARE SHOWN DIAGRAMMATICALLY WITH ARCS AND CURVES. SUCH DIAGRAMMATIC REPRESENTATION DOES NOT IMPLY OR INDICATE EXCLUSIVE USE OF ARMORED OR METAL CLAD CABLE (TYPE BX OR MC). ALL FIXTURE CONNECTION IN AREAS WITH LAY-IN CEILING SHALL BE MADE WITH CONDUIT AND WHIPS.
- I. ALL LAMPS, DRIVERS AND ELECTRONIC BALLASTS SHALL MATCH BASE BUILDING STANDARD.
- J. EXISTING FIXTURES RELOCATED BY ELECTRICAL CONTRACTOR: PROVIDE NEW MOUNTING ACCESSORIES, PLASTIC FRAME, BRACKET, BOXES, ETC., AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
- K. EXISTING FIXTURES RE-USED BY ELECTRICAL CONTRACTOR: EXISTING FIXTURES INDICATED TO BE RE-USED SHALL BE CLEANED AND RE-LAMPED. ELECTRICAL CONTRACTOR TO EXAMINE CONDITION OF EXISTING BALLAST, REPLACE IF NOISY OR DEFECTIVE. ALL BALLAST DATED BEFORE 1976 ARE PRESUMED TO CONTAIN PCB AND SHALL BE REMOVED BY THE ELECTRICAL CONTRACTOR. DISPOSE OF SUCH BALLAST IN STRICT COMPLIANCE WITH APPLICABLE FEDERAL AND STATE LAWS AND LOCAL ORDINANCES. FIXTURES NOT INDICATED FOR RE-USE SHALL BE DELIVERED TO A LOCATION TO BE SPECIFIED BY OWNER. DISPOSE OF SUCH FIXTURES IF NOT NEEDED BY OWNER.

SITE PLAN GENERAL NOTES

- A. PLAN REPRESENTS ENGINEER'S PROPOSED DESIGN. COORDINATE LOCATION AND INSTALLATION OF ELECTRICAL AND TELECOM SERVICE AND ALL RELATED DEVICES AND EQUIPMENT WITH OWNER AND UTILITY.
- B. UNDERGROUND SITE WORK: CONTRACTOR IS REQUIRED TO USE LINE LOCATOR TO IDENTIFY LOCATION(S) OF ALL EXISTING UTILITY LINES. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGES TO ANY EXISTING UTILITY LINES CAUSED BY EXCAVATION AND SUBSEQUENT REPAIR OF UTILITY LINES.
- C. AS-BUILT UNDERGROUND UTILITY DRAWINGS MUST BE PROVIDED SHOWING SPECIFIC LOCATIONS OF ALL UTILITIES BURIED ON THE ENTIRE SITE.

ELECTRICAL GENERAL NOTES

- ALL CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. FIELD VERIFY ACTUAL CIRCUIT NUMBERS RELOCATED AND TYPE-WRITTEN DIRECTORIES) REFLECTING ACTUAL CIRCUIT NUMBERS USED, WITH FIELD REVISED/ RELOCATED CIRCUITS CLEARLY INDICATED. DIRECTOR(IES) SHALL INCLUDE DATE AND PROJECT DESCRIPTION, EXAMPLE : 2006 NEW BLDG.
- EACH CIRCUIT IS SHOWN WITH AN INDIVIDUAL HOMERUN. E.C. MAY ELECT TO COMBINE TWO OR MORE CIRCUITS IN ONE COMMON CONDUIT AND WITH COMMON NEUTRAL WHERE ALLOWED (CIRCUITS WITH HIGH CONTENT OF HARMONIC CURRENTS MAY NOT USE COMMON NEUTRAL. EXAMPLE: CIRCUITS WITH NON-LINEAR ELECTRONIC POWER SUPPLIES SUCH AS COMPUTERS, COPIERS, PRINTERS, ETC). NOTE: AMPACITIES OF CONDUCTORS SHALL BE REDUCED IF MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE INSTALLED IN A RACEWAY. SEE N.E.C. ARTICLE 310.15(B)(2)(A) "ADJUSTMENT FACTORS". **CONDUCTORS SHALL BE DERATED IF 4 OR MORE WIRES ARE INSTALLED IN ONE CONDUIT (SEE RELATED NOTE "G3" ON TEMPERATURE LIMITATION OF CONDUCTOR AMPACITY). TYPICAL EXAMPLES FOR 20-AMP CIRCUITS ARE SHOWN BELOW:**

CURRENT CARRYING CONDUCTORS	IN TABLES AS ADJUSTED FOR TEMP IF NECESSARY	OR MORE WIRE IN ONE CONDUIT 60° C WIRE (E.G.: TW)	OR MORE WIRE IN ONE CONDUIT 75° C WIRE (E.G.: THWN)	OR MORE WIRE IN ONE CONDUIT 90° C WIRE (E.G.: THHN)
4 THRU 6	80%	#12	#12	#12
7 THRU 9	70%	#10	#10	#12
10 THRU 20	50%	#8	#8	#10
21 THRU 30	45%	#6	#6	#8
31 THRU 40	40%	#6	#6	#6
41 AND ABOVE	35%	#4	#6	#6

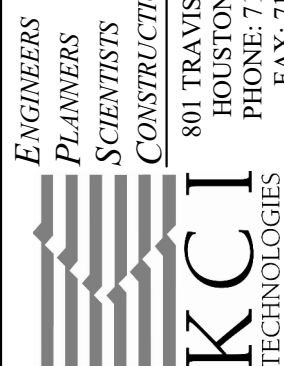
- TEMPERATURE LIMITATIONS ON AMPACITY OF CONDUCTOR: THE AMPACITY OF A CONDUCTOR SHALL BE SELECTED BASED ON THE NATIONAL ELECTRICAL CODE ARTICLES 310.15 AND 110.14.(C)(1),(2). THE TEMPERATURE LIMITATIONS NOTED IN 110.14.(C)(1),(2) MAY BE PARAPHRASED AS FOLLOWS : (A) CIRCUITS RATED 100 AMP OR LESS: USE 60-DEGREE C RATED CONDUCTORS ONLY. 75-DEGREE C AND 90-DEGREE C CONDUCTOR MAY BE USED BUT ONLY AT 60-DEGREE C AMPACITY. EXCEPTIONS: HIGHER TEMPERATURE CABLE ARE ALLOWED PROVIDED THE EQUIPMENT IS LISTED AND IDENTIFIED FOR USE WITH THE HIGHER RATED CONDUCTORS. (B) CIRCUITS RATED MORE THAN 100 AMP OR CONDUCTOR LARGER THAN #1 AWG. USE 75-DEGREE C RATED CONDUCTORS ONLY. 90-DEGREE C CONDUCTOR MAY BE USED BUT ONLY AT 75-DEGREE C AMPACITY. EXCEPTIONS: HIGHER TEMPERATURE CABLE ARE ALLOWED PROVIDED THE EQUIPMENT IS LISTED AND IDENTIFIED FOR USE WITH THE HIGHER RATED CONDUCTORS.
- WIRES OVERSIZED TO ALLEVIATE VOLTAGE DROP: WHERE OVERSIZED WIRES ARE USED TO ALLEVIATE VOLTAGE DROP, CONTRACTOR TO PROVIDE REDUCER LUGS AND/OR J-BOXES AS REQUIRED TO TERMINATE WIRES IN EQUIPMENT.
- ALL CONDUIT AND WIRE MUST BE CONCEALED FROM VIEW. EXPOSED CONDUIT AND WIRE ARE NOT ACCEPTABLE. EXCEPTIONS ARE CENTRAL PLANT, MECHANICAL/ELECTRICAL ROOMS.
- EXISTING CONSTRUCTION: ALL NEW WIRINGS INSTALLED IN EXISTING WALL/CEILING/MILLWORK SHALL BE CONCEALED, INCLUDING CONCRETE BLOCK WALL. PATCH ANY CUT AREAS TO MATCH EXISTING CONDITION.
- ALL ELECTRICAL AND COMMUNICATION DEVICES (LIGHT SWITCHES, RECEPTACLES, TELEPHONE, DATA ETC.) SHALL BE RECESSED MOUNTED UNLESS NOTED OTHERWISE. FIELD VERIFY RECEPTACLE MOUNTING REQUIREMENTS WITH OWNER/ ARCH., MOUNT ALL DUPLEX RECEPTACLES WITH THE "U" GROUND TERMINAL ON TOP, UNLESS NOTED OTHERWISE OR AS REQUIRED BY OWNER/ARCH. NEUTRAL TERMINAL SHALL BE ON TOP FOR HORIZONTALLY MOUNTED RECEPTACLES.
- ALL OUTLETS ON DEDICATED CIRCUITS (MARKED "DED" OR "D" ON PLANS) SHALL BE PROPERLY IDENTIFIED BY USING DISTINCTIVE COLOR DEVICES (USE BROWN OR GRAY). VERIFY CONFORM COLOR REQUIREMENTS WITH ARCHITECT/OWNER. COVER PLATES SHALL BE MARKED WITH CIRCUIT NUMBER(S) AND LOADS SERVED. EXAMPLE : CKT # LA-1 COPY MACHINE.
- EQUIPMENT LAYOUT IS BASED ON SQUARE D AND/OR SIEMENS. EQUIPMENT BY OTHER MANUFACTURERS SUCH AS GE MAY HAVE LARGER DIMENSIONS. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE EQUIPMENT WITH SIMILAR DIMENSIONS THAT WOULD FIT IN THE SPACE NOTED.
- VERIFY LOCATION OF ALL OUTLETS (POWER & COMMUNICATION) WITH OWNER/ARCH PRIOR TO ROUGH-IN. OWNER RESERVES THE RIGHT TO MOVE ANY OUTLETS 5 FEET IN ANY DIRECTION PRIOR TO ROUGH-IN. ALL RECEPTACLES WITHIN 6 FEET OF ANY WET AREA (EXAMPLE : SINK, DISHWASHER, ETC.) SHALL HAVE GROUND FAULT PROTECTION, WHETHER SPECIFICALLY INDICATED OR NOT ON DRAWINGS.
- MOUNTING HEIGHTS OF ALL OUTLETS (RECEPTACLES, SWITCHES, TELEPHONE, DATA, ETC.) IN AREAS WITH COUNTERTOP **SHALL BE VERIFIED WITH ARCH/OWNER**. GENERALLY ALL OUTLETS ARE TO BE MOUNTED ABOVE COUNTERTOP EXCEPT OUTLETS FOR DISPOSERS, UNDERCOUNTER DISHWASHER, UNDERCOUNTER REFRIGERATORS ETC. REFER TO ARCH INTERIOR ELEVATIONS.
- ALL WEATHERPROOF/WET LOCATION AND/OR OUTDOOR RECEPTACLES SHALL HAVE "WEATHERPROOF-IN-USE" COVERS (NEC ARTICLE 406.8(B)). PROVIDE RACO BELL RAYNITE II COVERS OR EQUAL.
- SWITCHES/STARTERS FOR MECH AND OTHER EQUIPMENT : LOCATION OF DISCONNECT SWITCHES, STARTERS, CONTROL STATIONS ETC ARE SHOWN DIAGRAMMATICALLY ON THE DRAWINGS. E.C. SHALL INSTALL SUCH DEVICES IN COMPLIANCE WITH CODE REQUIRED CLEARANCE REQUIREMENTS. ALL SUCH DEVICES SHALL BE ACCESSIBLE AFTER EQUIPMENT ARE IN PLACE AND SATISFY CODE CLEARANCE REQUIREMENTS. **REMOVE AND RE-INSTALL DEVICES THAT ARE INACCESSIBLE OR WITH INADEQUATE CODE CLEARANCE**, COORDINATE INSTALLATION W/HVAC.
- HVAC EQUIPMENT : OVERCURRENT DEVICES, DISCONNECT SWITCHES, CONDUIT/WIRE ARE SELECTED BASED ON EQUIPMENT SHOWN ON MECHANICAL DRAWINGS. FIELD VERIFY RATINGS OF EOPT SUPPLIED BY HVAC, REVISE ELECTRICAL AS REQUIRED TO MATCH ACTUAL EOPT SUPPLIED BY MECH CONTRACTOR.
- OUTDOOR PAD-MOUNTED A/C EQUIPMENT : CONNECT A/C EQUIPMENT TO OUTDOOR NEMA 3R DISCONNECT SWITCHES WITH UNDERGROUND RIGID CONDUIT FEEDER. STUB UP CONDUIT NEAR EQUIPMENT CONNECTION POINT. PROVIDE SEALTITE FROM CONDUIT STUBUP TO EQUIPMENT. MAXIMUM LENGTH OF SEALTITE 5 FEET. SEALTITE LONGER THAN 5 FEET IS NOT ALLOWED.
- ESTIMATED LOADS : INFORMATION AND DATA ON SPECIALTY EQUIPMENT MAY NOT BE AVAILABLE DURING THE DESIGN PROCESS. SOME LOADS ARE NECESSARILY ESTIMATED. SUCH ESTIMATED LOADS ARE INDICATED AS (EST.) ON PLANS, RISER DIAGRAMS AND/OR PANEL SCHEDULES. CONTRACTOR SHALL BID THE PROJECT USING THE ESTIMATED FEEDER/BREAKERS/SWITCHES SHOWN ON DRAWINGS. HOWEVER, THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMATION AND VERIFICATION OF ALL SUCH ESTIMATED LOADS WITH THE APPROPRIATE VENDORS/SUPPLIERS. ALL SHOP DRAWINGS SUBMITTED BY THE CONTRACTOR SHALL INCLUDE CERTIFICATION THAT THE CONTRACTOR HAS CONFIRMED/VERIFIED ANY ESTIMATED LOADS SHOWN ON THE DRAWINGS. CONTRACTOR WILL NOT BE DUE ANY ADDITIONAL COMPENSATION FOR HIS FAILURE TO VERIFY THE ESTIMATED LOADS SHOWN ON DRAWINGS. PROVIDE CREDIT TO THE OWNER IF ACTUAL LOADS ARE SMALLER THAN ESTIMATED LOADS. CREDIT SHALL BE GIVEN FOR SIZE REDUCTION ON FEEDER/ BREAKER/ SWITCHES.
- EXAMPLE OF EQUIPMENT LOADS THAT ARE TYPICALLY ESTIMATED : SPECIAL COPY MACHINE, WELDING EOPT OUTLET, ELEVATOR MACHINERY, ...
- EXHAUST FANS : WHERE EXHAUST FANS ARE INDICATED AS INTERLOCKED WITH HVAC EQUIPMENT, E.C. SHALL PROVIDE ALL REQUIRED RELAYS, CONDUIT/CONTROL WIRES ETC AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM. COORDINATE INTERLOCK REQUIREMENTS WITH HVAC CONTRACTOR.
- PROVIDE HOUSE KEEPING CONCRETE PAD (MINIMUM 4" HIGH) FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT INCLUDING TRANSFORMERS, SWITCHBOARDS, M.C.C., TRANSFER SWITCHES ETC. PROVIDE ALL REQUIRED AND NECESSARY GALVANIZED UNISTRUT SUPPORT FOR ALL INDOOR/OUTDOOR ELECTRICAL EQUIPMENT.
- FIRE WALL : DO NOT INSTALL RECEPTACLES, TELEPHONE, DATA OUTLETS ETC. BACK-TO-BACK IN FIRE/SMOKE PARTITIONS OR WITHIN THE SAME SPACE ENCLOSED BY TWO ADJACENT STUDS. ALSO APPLY TO ALL CORRIDOR WALLS.
- FOR EACH 2-POLE OR 3-POLE BRANCH CIRCUIT, NEUTRAL WIRE **MAY BE OMITTED** IF NOT REQUIRED BY EQUIPMENT.

SUDS DELUXE CAR WASH

PM:JDP DE:JDP

PROJECT:
792208473

SHEET:
E-002
ELECTRICAL
NOTES



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ELECTRICAL SPECIFICATIONS

26 05 00 BASIC ELECTRICAL REQUIREMENTS
PERMITS AND CODES: OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND REQUIRED INSPECTIONS. COMPLY WITH ALL NATIONAL, STATE AND MUNICIPAL LAWS, CODES AND ORDINANCES RELATING TO BUILDING AND PUBLIC SAFETY. PROVIDE ANY REQUIRED TEMPORARY POWER AND UTILITIES FOR ALL TRADES AND ALL CONSTRUCTION TRAILERS. PROVIDE TEMPORARY CONSTRUCTION LIGHTING AND POWER.
ELECTRICAL CONTRACTOR SHALL INCLUDE TEMPORARY ELECTRIC SERVICE: ALL TEMPORARY ELECTRIC SHALL BE IN ACCORDANCE WITH OSHA CONSTRUCTION STANDARDS 29CFR, PART 1926 AND ARTICLE 305 OF THE NATIONAL ELECTRICAL CODE. TEMPORARY LIGHTING AND POWER SHALL BE PROVIDED IN ACCORDANCE WITH OSHA STANDARDS. THE OSHA MINIMUM ILLUMINATION IS 5 FOOTCANDLES IN GENERAL CONSTRUCTION AREAS, AND 10 FC IN MECHANICAL / ELECTRICAL ROOMS AND WORKROOMS. INCLUDED ARE CONNECTIONS TO ALL CONDUIT TRAILERS. THE COST OF THIS WORK IS TO BE INCLUDED IN THE BASE ELECTRICAL BID FOR THE PROJECT.
TRENCH SAFETY: SEE SUBCHAPTER C OF CHAPTER 756 OF THE TEXAS HEALTH AND SAFETY CODE FOR REQUIREMENTS APPLICABLE TO TRENCH SAFETY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE COMPLIANCE WITH APPLICABLE STATE AND FEDERAL LAWS, AND NO PROVISION OF THESE DRAWINGS OR SPECIFICATIONS SHALL BE DEEMED TO EXCUSE COMPLIANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS FOR TRENCH SAFETY.

VISITING THE JOB SITE: VISIT THE SITE OF THE PROPOSED CONSTRUCTION IN ORDER TO FULLY UNDERSTAND THE FACILITIES, DIFFICULTIES AND RESTRICTIONS ATTENDING THE EXECUTION OF THE WORK. NO ADDITIONAL COMPENSATION WILL BE ALLOWED THIS CONTRACTOR FOR WORK OR ITEMS OMITTED FROM HIS ORIGINAL PROPOSAL DUE TO HIS FAILURE TO INFORM HIMSELF REGARDING SUCH MATTERS AFFECTING THE PERFORMANCE OF THE WORK IN THIS CONTRACT OR NECESSARY FOR THE INSTALLATION AND COMPLETION OF THE WORK INCLUDED HEREIN.

DRAWINGS: DRAWINGS ARE DIAGRAMMATIC, CONFIRM DIMENSIONS & LOCATIONS IN THE FIELD. IF CONFLICTING DIMENSIONS ARE SHOWN, USE LARGER DIMENSIONS AND VERIFY WITH ARCHITECT. SEE ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION OF FIXTURES AND WALL MOUNTED DEVICES.

MATERIAL: ALL MATERIALS SHALL BE NEW AND U.L. LISTED. MATERIAL INSTALLATION SHALL COMPLY WITH NEC REQUIREMENTS AND PERFORM BY CRAFTSMAN SKILLED IN THIS PARTICULAR WORK.

EQUIPMENT PROTECTION: PROTECT EQUIPMENT AND WORK FROM DAMAGE DURING HANDLING AND INSTALLATION UNTIL COMPLETION OF CONSTRUCTION.

COOPERATION WITH OTHER TRADES: COOPERATION WITH TRADES OF ADJACENT, RELATED OR AFFECTED MATERIALS OR OPERATIONS, AND WITH TRADES PERFORMING CONTINUATIONS OF THIS WORK UNDER SUBSEQUENT CONTRACTS, IS CONSIDERED A PART OF THIS WORK IN ORDER TO EFFECT TIMELY AND ACCURATE PLACING OF WORK AND TO BRING TOGETHER, IN PROPER AND CORRECT SEQUENCE, THE WORK OF SUCH TRADES. PROVIDE OTHER TRADES, AS REQUIRED, ALL NECESSARY TEMPLATES, PATTERNS, SETTING PLANS AND SHOP DETAILS FOR THE PROPER INSTALLATION OF THE WORK AND FOR THE PURPOSE OF COORDINATING ADJACENT WORK. ELECTRICAL POWER CONNECTIONS FOR MECHANICAL AND PLUMBING EQUIPMENT ARE IN THIS DIVISION UNLESS NOTED OTHERWISE. VERIFY CHARACTERISTICS OF ALL EQUIPMENT WITH DIVISION 15 AND OTHER SPECIAL DIVISIONS (ELEVATORS ETC) BEFORE ROUGHING IN THE ELECTRICAL CONNECTIONS AND ENERGIZING THE EQUIPMENT.
MECH/PLUMBING/SPECIAL EQPT ACCESS AND CLEARANCE AREAS: REMOVE ANY IMPROPERLY INSTALLED ELECTRICAL EQPT AND CONDUIT THAT ARE LIMITING PROPER ACCESS FOR EQPT SERVICE AND MAINTENANCE.

ACCESS PANEL: PROVIDE ACCESS PANELS OR DOORS FOR ALL DEVICES REQUIRING ADJUSTMENT. SIMILARLY FOR ALL JUNCTION BOXES. PULL BOXES ETC THAT ARE REQUIRED TO BE ACCESSIBLE PER CODE AND/OR THE LOCAL AUTHORITY HAVING JURISDICTION. APPEARANCE OF ACCESS PANELS/DOORS SHALL BE ACCEPTABLE TO ARCHITECT. PANELS/DOORS SHALL BE DESIGNED FOR THE FIRE RATING OF WALL OR CEILING IN WHICH THEY ARE INSTALLED. ALL ACCESS PANELS SHALL BE LOCKABLE AND SHALL BE KEYPED ALIKE (SAME KEYING AS PANELS FROM OTHER DIVISIONS).

PLENUMS: PLENUMS ARE CROWDED AND NOT ALL OBSTACLES ARE INDICATED. ALLOW FOR CONDUIT OFFSETS AND PULL BOXES NOT INDICATED ON DRAWINGS.

PLASTER, GYPSUM BOARD OR OTHER NON-ACCESSIBLE CEILINGS: CONTRACTOR SHALL MINIMIZE CUTTING AND PATCHING BY INSTALLING CONDUIT PRIOR TO CEILING/WALL/PARTITION COVER-UP.

LOSS OR DAMAGE TO EXISTING FACILITIES:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOSS OR DAMAGE TO THE EXISTING FACILITIES CAUSED BY HIM AND HIS WORKMEN, AND SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING SUCH LOSS OR DAMAGE. THE CONTRACTOR SHALL SEND PROPER NOTICES, MAKE NECESSARY ARRANGEMENTS, AND PERFORM OTHER SERVICES FOR THE CARE, PROTECTION AND IN-SERVICE MAINTENANCE OF ALL ELECTRICAL SERVICES FOR THE 'NEW AND EXISTING' FACILITIES. THE CONTRACTOR SHALL ERECT TEMPORARY BARRICADES, WITH NECESSARY SAFETY DEVICES, AS REQUIRED TO PROTECT PERSONNEL AND THE GENERAL PUBLIC FROM INJURY, REMOVING ALL SUCH TEMPORARY PROTECTION UPON COMPLETION OF THE WORK.
THE CONTRACTOR SHALL MODIFY, REMOVE AND/OR REPLACE ALL MATERIALS AND ITEMS SO INDICATED ON THE DRAWINGS OR REQUIRED BY THE INSTALLATION OF NEW FACILITIES. SALVAGE MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE DELIVERED TO SUCH DESTINATION AS DIRECTED BY THE OWNER. DISPOSE OF SALVAGE MATERIAL IF NOT RETAINED BY OWNER.
WHERE EXISTING CONSTRUCTION IS REMOVED TO PROVIDE WORKING AND EXTENSION ACCESS TO EXISTING UTILITIES, CONTRACTOR SHALL REMOVE CEILING GRID, TILES, DOORS, PIPING, AIR CONDITIONING DUCTWORK AND EQUIPMENT, ETC., TO PROVIDE THIS ACCESS AND SHALL REINSTALL SAME UPON COMPLETION OF WORK IN THE AREAS AFFECTED.

WORK IN OCCUPIED AREAS: WORK IN, ABOVE, BELOW OR NEAR OCCUPIED AREAS SHALL BE AT OWNER'S CONVENIENCE AND MAY BE DURING EVENINGS OR WEEKENDS. SCHEDULE ALL REQUIRED POWER OUTAGES A MINIMUM OF 7 DAYS IN ADVANCE WITH FACILITY ENGINEER/OWNER. DO NOT TURN OFF ANY POWER SOURCES. ONLY FACILITY ENGINEER/OWNER OR HIS AUTHORIZED REPRESENTATIVE MAY DO SO.

ELECTRICAL SERVICE OUTAGE: SERVICE TO THE EXISTING BUILDING SHALL BE MAINTAINED DURING NORMAL WORKING HOURS. ANY SERVICE OUTAGE REQUIRED TO COMPLETE THE WORK SHALL BE THE TIME AND FOR THE LENGTH OF TIME AS DIRECTED BY THE OWNER. ALL PREMIUM TIME SHALL BE INCLUDED IN CONTRACTOR'S BID.

FIRE STOPS AND PENETRATION SEALS: ALL PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS SHALL BE SEALED WITH 3M FIRE RESISTANT FOAM SEALANT TO PREVENT THE SPREAD OF SMOKE, FIRE, TOXIC GAS OR WATER THROUGH THE PENETRATION EITHER BEFORE, DURING OR AFTER A FIRE. THE FIRE RATING OF THE PENETRATION SEAL SHALL BE AT LEAST THAT OF THE FLOOR OR WALL INTO WHICH IT IS INSTALLED, SO THAT THE ORIGINAL FIRE RATING OF THE FLOOR OR WALL IS MAINTAINED AS REQUIRED BY ARTICLE 300.21 OF THE NATIONAL ELECTRICAL CODE.

CLEAN UP: A) PROVIDE FOR ISOLATION OF WORK AREAS AND DAILY REMOVAL OF DEBRIS. B) CLEAN ALL EQUIPMENT AND FIXTURE LENSES. C) REPLACE ALL BURNED OUT LAMPS. D) TOUCH UP WITH PAINT WHERE REQUIRED.

SUBMITTAL DATA: SUBMITTALS ARE REQUIRED BUT NOT LIMITED TO THE FOLLOWING EQUIPMENT: LIGHTING FIXTURES; SWITCHGEAR; MCCS; DISTRIBUTION; PANELBOARDS; BRANCH CIRCUIT PANELBOARDS; TRANSFORMERS; SWITCHES ETC; EMERGENCY STANDBY GENERATOR SYSTEM; FIRE ALARM SYSTEM; NURSE CALL SYSTEM; SECURITY SYSTEM; TELEPHONE SYSTEM; COMMUNICATION SYSTEM; CONDUIT/FITTINGS; WIRES; LIGHTNING PROTECTION SYSTEM

SHOP DRAWINGS: SHOP DRAWINGS AS REQUIRED SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST TO THE ARCHITECT. THESE SHOP DRAWINGS SHALL BE PREPARED TO INDICATE INSTALLATION OF MAJOR EQUIPMENT WHERE SPECIAL COORDINATION PROBLEMS EXIST.
OVERCURRENT & SAFETY DISCONNECT DEVICES FOR HVAC EQPT: OVERCURRENT (OC) & DISCONNECT DEVICES SHOWN ON PLANS ARE BASED ON A SPECIFIC HVAC EQUIPMENT MANUFACTURER. HVAC CONTRACTOR MAY SUBMIT OTHER MANUFACTURERS, DIFFERENT MODELS OR RATINGS. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE OC/DISCONNECT DEVICES WITH THE HVAC CONTRACTOR PRIOR TO SUBMITTING SUCH DEVICES FOR ENGINEER'S REVIEW. ANY DEVIATIONS FROM SIZES SHOWN ON DRAWINGS MUST BE NOTED IN THE SUBMITTALS. THE ELECTRICAL CONTRACTOR MUST CERTIFY THAT HE HAS REVIEWED AND COORDINATED WITH THE HVAC CONTRACTOR AND THAT ALL OC/DISCONNECT DEVICES SUBMITTED MATCH THE HVAC EQPT REQUIREMENTS. SHOP DRAWINGS WITHOUT SUCH CERTIFICATION WILL BE RETURNED TO THE CONTRACTOR. ONLY SUBMITTALS WITH SUCH CERTIFICATION WILL BE REVIEWED.

COMPLETE SYSTEMS: ALL SYSTEMS SHALL BE COMPLETE AND WORKING AT COMPLETION OF CONSTRUCTION.

FINAL INSPECTION & OPERATING TESTS: ALL ELECTRICAL SYSTEMS MUST BE CHECKED FOR PROPER POLARITY AND SEQUENCE. ALL MOTORS MUST BE CHECKED FOR PROPER ROTATION AND ALL EQUIPMENT (INCLUDING HVAC, ELEVATOR AND SPECIAL EQUIPMENT) CHECKED FOR PROPER VOLTAGE AND PHASING REQUIREMENTS. PRIOR TO THE APPLICATION OF ANY POWER, THE CONTRACTOR MUST CERTIFY THAT ALL CONNECTED EQUIPMENT MATCH THE CHARACTERISTICS OF THE SUPPLY CIRCUIT VOLTAGE, PHASING AND FEEDER REQUIREMENTS.
AT THE TIME DESIGNATED BY THE ARCHITECT, THE ENTIRE SYSTEM SHALL BE INSPECTED BY THE ARCHITECT AND THE ENGINEER. THE CONTRACTOR OR HIS REPRESENTATIVE SHALL BE PRESENT AT THIS INSPECTION.
AFTER ALL SYSTEMS HAVE BEEN COMPLETED AND PUT INTO OPERATION, SUBJECT EACH SYSTEM TO AN OPERATING TEST UNDER DESIGN CONDITIONS TO ENSURE PROPER SEQUENCE AND OPERATION THROUGHOUT THE RANGE OF OPERATION, MAKE ADJUSTMENTS AS REQUIRED TO INSURE PROPER FUNCTIONING OF ALL SYSTEMS. SPECIAL TESTS ON INDIVIDUAL SYSTEMS ARE SPECIFIED UNDER INDIVIDUAL SECTIONS.
THE CONTRACTOR SHALL PROVIDE A SET OF AS-BUILT DRAWINGS AND NYLAR REPRODUCEIBLES TO THE OWNER/ARCH. AFTER THE INSPECTION, ANY ITEMS WHICH ARE NOTED AS NEEDING TO BE CHANGED OR CORRECTED IN ORDER TO COMPLY WITH THESE SPECIFICATIONS AND THE DRAWINGS SHALL BE ACCOMPLISHED WITHOUT DELAY.

GUARANTEE: GUARANTEE ALL WORK AND MATERIALS FURNISHED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER AND ARCHITECT. GUARANTEE SHALL INCLUDE: ALL LABOR, PARTS, TRAVEL/SUBSISTENCE, SOFTWARE CHANGES/RE-PROGRAMMING, ETC.

RECORD DRAWINGS: MAINTAIN A CONTINUOUS DAILY RECORD DURING THE COURSE OF CONSTRUCTION OF ALL CHANGES AND DEVIATIONS IN THE WORK FROM THE ACCOMPANYING DRAWINGS. SHOW EXACT DIMENSIONS FOR ALL UNDER-SLAB CONDUIT. UPON COMPLETION OF WORK PURCHASE A SET OF NYLAR REPRODUCEIBLES AND MAKE CORRECTIONS TO RECORD DRAWINGS AS THEY ARE MADE. RECORD DRAWINGS AS INSTALLED. SUBMIT THREE PRINTS OF THE TRACINGS FOR APPROVAL. MAKE CORRECTIONS TO TRACINGS AS DIRECTED AND DELIVER NYLAR TRACINGS TO THE OWNER.

26 05 73 SHORT CIRCUIT CALCULATION, PROTECTIVE DEVICE COORDINATION AND ARC FLASH STUDIES
PROVIDE SHORT CIRCUIT CALCULATION, PROTECTIVE DEVICE COORDINATION AND ARC FLASH HAZARD STUDIES. STUDIES SHALL ENCOMPASS ELECTRICAL DISTRIBUTION SYSTEM FROM NORMAL POWER SOURCE OR SOURCES TO AND INCLUDING (BRANCH BREAKERS IN EACH PANELBOARD). PREPARE STUDY PRIOR TO ORDERING DISTRIBUTION EQUIPMENT TO VERIFY EQUIPMENT RATINGS REQUIRED. PERFORM STUDY WITH AID OF COMPUTER SOFTWARE PROGRAMS. REPORT SHALL INCLUDE: (A) CALCULATION METHODS AND ASSUMPTIONS, (B) ONE LINE DIAGRAM, (C) STATE CONCLUSIONS AND RECOMMENDATIONS

ARC FLASH HAZARD ANALYSIS SHALL NOT BE REQUIRED FOR EQUIPMENT RATED 240 VOLTS OR LESS AND SUPPLIED BY ONE TRANSFORMER RATED LESS THAN 125 KVA.
CONTRACTOR SHALL PROVIDE WARNING LABELS ON ELECTRICAL EQUIPMENT INDICATING INCIDENT ENERGY LEVEL, LEVEL OF HAZARD AND THE REQUIRED PERSONAL PROTECTION EQUIPMENT. EQUIPMENT SHALL INCLUDE, BUT NOT LIMITED TO, SWITCHBOARDS, DISTRIBUTION PANELS, MOTOR CONTROL CENTERS, PANELS, CONTACTORS, DISCONNECT SWITCHES AND MOTOR STARTERS.

26 05 33 CONDUIT AND BOXES
CONDUIT: SHALL BE RIGID GALVANIZED STEEL (RGS) OR ELECTRICAL METALLIC TUBING (EMT) AS MANUFACTURED BY ALLIED, TRIANGLE OR WHEATLEIGH. PROVIDE TEMPORARY CONSTRUCTION TRAILERS. PROVIDE TEMPORARY CONSTRUCTION LIGHTING AND POWER.
• DOORS ABOVE GRADE: EMT OR RGS.
• OUTDOORS ABOVE GRADE, STUB-UPS, OR ON ROOF: RGS OR IMC
• BELOW GRADE: SCHEDULE 40 OR 80 PVC OR RGS.
• UNDER SLAB: RGS OR SCHEDULE 80 PVC.
PROVIDE TRANSITION FITTINGS FROM PVC TO CH 40 OR 80 TO RGS FOR ALL ABOVE GRADE CONDUIT. ALL UNDERGROUND METALLIC CONDUIT SHALL HAVE 40MIL THICK TYPICAL METAL CLAD CABLES. "ACCEPTABLE" IF APPROVED BY THE LOCAL AUTHORITY. MC CABLE, IF APPROVED, HOWEVER, MAY BE USED ONLY FOR DROPS FROM CEILING PLENUM JUNCTION BOXES TO LIGHT FIXTURES AND RECEPTABLES & LIGHT SWITCHES IN WALLS. MC CABLE MAY BE USED AS FIXTURE WHIPS FROM CEILING PLENUM JUNCTION BOXES TO LIGHT FIXTURES, WHIPS MUST BE 6-FT OR LESS. HOMERUN CIRCUITS TO PANELS SHALL BE IN CONDUIT, MC HOMERUN TO PANELS IS NOT ACCEPTABLE. TYPE "AC" ARMORED CABLE (COMMONLY REFERRED TO AS "BX") IS NOT ACCEPTABLE AND SHALL NOT BE USED. ELECTRICAL NONMETALLIC TUBING (ENT, N.E.C. ARTICLE 362) SHALL NOT BE USED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. FLEXIBLE CONDUIT SHALL BE UTILIZED AS FINAL CONNECTIONS (3'-5" ONLY) AT THE FOLLOWING EQUIPMENT: MOTORS, LIGHTING FIXTURES, HEATER, POWER SUPPLIES, AND ANY OTHER VIBRATION PRODUCING EQUIPMENT. UTILIZE 1/2" FLEXIBLE METALLIC CONDUIT MINIMUM AND INCLUDE A GREEN GROUND WIRE. USE SEAL TIE IN WET LOCATIONS SUCH AS OUTDOOR CONDENSING UNITS, WALK-IN COOLER/FREEZER, KITCHEN, ROOFTOP HVAC EQPT ETC. CONDUIT SHALL BE SUPPORTED FROM STRUCTURE EVERY 5 FEET AND WITHIN 3 FEET OF ALL BOXES. USE LOCKNUTS INSIDE AND OUT AT JOINTS. MAINTAIN MINIMUM 12" SEPARATION FROM ALL HIGH TEMPERATURE PIPES. ALL CONDUIT RUNS SHALL BE INSTALLED EITHER PARALLEL OR PERPENDICULAR TO BUILDING LINES. ROUTE CNDUIT AS DIRECTLY AS POSSIBLE WITH LARGEST RADIUS BENDS POSSIBLE. MAKE BENDS WITH STANDARD ELLS OR BENDS PER NEC. PROVIDE EXPANSIONS FITTINGS IF CONDUIT CROSSES STRUCTURAL EXPANSION JOINT. ALL CONDUIT ON ROOF SHALL BE SUPPORTED BY AN ENGINEER, PREFABRICATED PORTABLE PIPE SYSTEM SPECIFICALLY DESIGNED TO BE INSTALLED ON THE ROOF WITHOUT ROOF PENETRATIONS, FLASHING OR DAMAGE TO THE ROOF.
CONDUIT SHALL BE SUPPORTED BY ERICO, MOORE "CADDY PYRAMID" OR EQUAL BY COOPER B-LINE. SUPPORT AT INTERVAL NOT TO EXCEED 10' ON CENTER, AND WITHIN 5' OF ANY DEFLECTION OF CONDUIT. CONDUIT ON ROOF SHALL BE SUPPORTED ON 4"x4" REDWOOD SLEEPER AT 10-FOOT INTERVAL. CLEAN CONDUIT INTERIOR AFTER INSTALLATION; COAT SCRATCHES WITH ZINC PAINT. PROVIDE PULL WIRE IN ALL CONDUIT (POWER, FIRE ALARM, TELEPHONE AND OTHER COMMUNICATION CONDUIT). PULL WIRE ALSO REQUIRED IN ALL SPARE CONDUIT.
PROJECT RECORD DOCUMENTS: ACCURATELY RECORD ACTUAL ROUTING OF ALL UNDERSLAB AND UNDERGROUND CONDUITS; INCLUDE DIMENSIONS FROM KEY BUILDING POINTS AND DEPTH OF COVER.

OUTLET BOXES: SHALL BE GALVANIZED STEEL SUITABLE FOR LOCATION. CEILING OUTLET BOXES SHALL BE 4" OCTAGON. WALL OUTLET BOXES SHALL BE PROPER DESIGN TO ACCOMMODATE THE DEVICES REQUIRED - 4 INCH SQUARE WITH RAISED COVER. PROVIDE RACO, STEEL CITY OR APPLETON. ALL J-BOXES / SPLICE BOXES MUST BE ACCESSIBLE.

JUNCTION / PULL BOXES: (A) FOR EACH CONDUIT RUN: PROVIDE ONE JUNCTION/PULL BOX FOR EACH EQUIVALENT THREE QUARTER BENDS (270"). (B) UNDERGROUND FEEDERS: MINIMUM ONE PULL BOX FOR EACH 350 FEET OF CONDUIT RUN.

26 05 19 BUILDING WIRE AND CABLE
WIRE (TRIANGLE, ALLIED AND INCLAYED CABLE CO., OR CABLEC)
ALL WIRING SHALL BE IN CONDUIT (EXCEPT PLENUM RATED LOW VOLTAGE CABLES). ALL WIRES MUST BE 75-DEGREE C RATED OR BETTER. 60-DEGREE C RATED WIRE SHALL NOT BE USED. 90-DEGREE C RATED WIRE MAY BE USED BUT ONLY AT 75-DEGREE C AMPACITY. EMERGENCY AND NORMAL CIRCUITS MUST BE INSTALLED IN SEPARATE CONDUIT AND DEVICE BOXES PER N.E.C. ARTICLE 700.9.(B).
A) MINIMUM SIZE #12 EXCEPT CONTROLS MAY BE #14. USE #10 CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 100 FEET. USE #10 CONDUCTORS FOR 20 AMPERE, 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET.
B) TYPE THHN/THWN STRANDED COPPER THERMOPLASTIC IN DRY LOCATIONS.
C) TYPE THWN IN WET LOCATIONS (OUTDOOR, UNDERGROUND, ON ROOF, ETC.).
D) ALL WIRE SHALL BE 98% CONDUCTIVITY COPPER, 600 VOLT, NO ALUMINUM WIRES.
E) WIRE #10 AND SMALLER MAY BE SOLID OR STRANDED, #8 OR LARGER SHALL BE STRANDED.
F) COMMUNICATION WIRE (FIRE ALARM, TELEPHONE, HVAC THERMOSTAT, DATA ETC.), PLENUM RATED LOW-SMOKE CABLE MAY BE USED IN LIEU OF WIRE/CONDUIT TYPE INSTALLATION. ALL PLENUM RATED CABLE SHALL BE PROPERLY SUPPORTED BY BRIDAL RINGS, CABLE TIES, CLIPS ETC MADE BY ERICO (CADDY COMMUNICATION FASTENERS) OR EQUAL. DO NOT USE SCRAP WIRE TO WRAP AND SUPPORT COMMUNICATION WIRES. HOMEMADE SUPPORT DEVICES ARE NOT ACCEPTABLE. DO NOT LAY COMMUNICATION CABLE DIRECTLY ON TOP OF CEILING TILES. INSTALL CABLES A MINIMUM OF 12" ABOVE CEILING TILES AND 12" FROM HVAC DUCTWORK. PROVIDE A MINIMUM OF 6" SEPARATION BETWEEN POWER CONDUIT AND COMMUNICATION WIRINGS.

FIELD INSULATION TESTING: INSULATION RESISTANCE OF ALL CONDUCTORS SHALL BE TESTED. EACH CONDUCTOR SHALL HAVE ITS INSULATION RESISTANCE TESTED AFTER THE INSTALLATION IS COMPLETED AND ALL SPLICES, TAPS AND CONNECTIONS ARE MADE EXCEPT CONNECTION TO OR INTO ITS SOURCE AND POINT (OR POINTS) OF TERMINATION. INSULATION RESISTANCE OF CONDUCTORS WHICH ARE TO OPERATE AT 600 VOLTS OR LESS SHALL BE TESTED BY USING A BIDDLE MEGGER OF NOT LESS THAN 1000 VOLTS DC. INSULATION RESISTANCE OF CONDUCTORS RATED AT 600 VOLTS SHALL BE FREE OF SHORTS AND GROUNDS AND HAVE A MINIMUM RESISTANCE PHASE-TO-PHASE AND PHASE-TO-GROUND OF AT LEAST 10 MEGOHMS. CONDUCTORS THAT DO NOT EXCEED INSULATION RESISTANCE VALUES LISTED ABOVE SHALL BE REMOVED AT CONTRACTOR'S EXPENSE AND REPLACED AND TEST REPEATED. THE CONTRACTOR SHALL FURNISH AL INSTRUMENTS AND PERSONNEL REQUIRED FOR TESTS. SHALL TABULATE READINGS OBSERVED, AND SHALL FORWARD COPIES OF THE TEST READINGS TO THE OWNER. THESE TESTS REPORTS SHALL IDENTIFY EACH CONDUCTOR TESTED, DATE AND TIME OF TEST AND WEATHER CONDITIONS. EACH TEST SHALL BE SIGNED BY THE PARTY MAKING THE TEST.

26 27 26 WIRING DEVICES
WIRING DEVICES: FURNISH AND INSTALL WHERE INDICATED ON DRAWINGS. MATCH EXISTING OR BASE BUILDING DEVICES IF APPLICABLE. ALL DEVICES SHALL BE LEVITON "DECORA" TYPE (WHITE COLOR, CONFIRM W/ARCHITECT) OR APPROVED EQUAL UNLESS SPECIFIED OTHERWISE BY ARCHITECT. ALL RECEPTACLES SHALL BE RED SPEC. TYPE TOGGLE LIGHT SWITCHES AND COVER PLATES ON EMERGENCY POWER SHALL BE RED COLOR. EMERGENCY POWER OUTLETS AND COVER PLATES TO BE RED. ALL POWER OUTLETS SHALL HAVE CIRCUIT NUMBERS AND PANEL NAME ENGRAVED ON FACEPLATE.
DIMMER SWITCHES: PROVIDE DEDICATED NEUTRAL FOR DIMMER CONTROLLED LIGHTING CIRCUIT. DO NOT SHARE NEUTRAL WITH 2 OR MORE BRANCH CIRCUITS. DO NOT BREAK FINS (HEAT SINKS) ON DIMMER SWITCH. DERATED DIMMER SWITCHES MAY BE USED ONLY WHERE SPECIFICALLY APPROVED BY ENGINEER.
GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLE SHALL COMPLY WITH 2006 UL 943 SAFETY STANDARD. GFCI RECEPTACLE SHALL HAVE INTEGRAL END-OF-LIFE LED INDICATOR LIGHT, AND CONTINUOUS SENSING AND SELF-TESTING EVERY 60 SECONDS. PROVIDE HUBBELL GFRS352 OR APPROVED EQUAL.
ISOLATED POWER RECEPTABLES (IF USED) TO BE ORANGE COLOR, WITH CIRCUIT NUMBER AND PANEL NAME ENGRAVED ON FACE PLATE. COVER PLATES: HIGH ABUSE NYLON OR STAINLESS STEEL PER ARCHITECT. PROVIDE CIRCUIT NUMBER LABEL ON ALL DEVICE PLATES. ALL ELECTRICAL BOXES ON OPPOSITE SIDES OF CORRIDOR WALLS AND FIREWALLS MUST BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES.

TESTING AND CERTIFICATION: CONTRACTOR SHALL DELIVER A WRITTEN REPORT CERTIFYING THAT EVERY RECEPTACLE HAS BEEN TESTED AS FOLLOWS AND FOUND ACCEPTABLE: (A) THE PHYSICAL INTEGRITY OF EACH RECEPTACLE SHALL BE CONFIRMED BY VISUAL INSPECTION. (B) THE POLARITY OF THE GROUNDING CIRCUIT IN EACH ELECTRICAL RECEPTACLE SHALL BE VERIFIED. (C) CORRECT POLARITY OF THE HOT AND NEUTRAL CONNECTIONS IN EACH ELECTRICAL RECEPTACLE SHALL BE CONFIRMED. (D) THE RETENTION FORCE OF THE GROUNDING BLADE OF EACH ELECTRICAL RECEPTACLE (EXCEPT LOCKING-TYPE RECEPTABLES) SHALL BE NOT LESS THAN 115 GRAMS (4 OZ).

26 05 26 GROUNDING AND BONDING
GROUNDING: ALL CONDUIT WORK AND ELECTRICAL EQUIPMENT SHALL BE EFFECTIVELY AND PERMANENTLY GROUNDED IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE GREEN EQUIPMENT GROUNDING CONDUCTOR WITH ALL POWER AND RECEPTACLE AND LIGHTING CIRCUITS. GREEN EQUIPMENT GROUNDING CONDUCTOR SHALL BE ROUTED FROM PANEL GROUND BUS TO FINAL DEVICES. GROUNDING ELECTRODES: PROVIDE 3/4" X 10-FT LONG, COPPER-CLAD, STEEL GROUNDING ROD. FOR BELOW-GRADE CONNECTIONS PROVIDE EXOTHERMIC WELDED TYPE. FOR ABOVE GRADE CONNECTIONS PROVIDE MECHANICAL BOLTED-TYPE CONNECTIONS UTILIZING HIGH CONDUCTIVE COPPER ALLOY OR BRONZE LUGS OR CLAMPS. SERVICE GROUND RESISTANCE: MUST BE LESS THAN 25 OHMS. PROVIDE ADDITIONAL GROUND RODS AS REQUIRED TO OBTAIN 25 OHMS OR LESS.

26 05 53 ELECTRICAL IDENTIFICATION
IDENTIFICATION: LABEL ALL JUNCTION AND PULL BOXES WITH PANELS AND CIRCUIT NUMBERS. ALL JUNCTION AND PULL BOXES IN CEILING PLENUM SHALL BE PAINTED YELLOW FOR 480 VOLT HIGH VOLTAGE SYSTEM, BLUE FOR LOW VOLTAGE SYSTEM (240 VOLT AND/OR 208 VOLT). FURNISH MARKERS OR PAINT BAND FOR EACH CONDUIT LONGER THAN 6 FEET, SPACING 20 FEET ON CENTER. COLOR OF PAINT BAND (CONFIRM COLOR MATCHES EXISTING COLOR CODE) : (A) 480 VOLT SYSTEM - BLACK, (B) 208 VOLT SYSTEM - BLACK W/BLUE STRIPES, (C) FIRE ALARM SYSTEM - RED, (D) TELEPHONE SYSTEM - YELLOW, (E) OTHER SYSTEM - BY SPECIFIC LETTER DESCRIPTION. LABEL ALL HOMERUN AND MAJOR CONDUIT WITH HOME PANELS/SWITCHES ETC. AT EVERY 10-FT. INTERVAL IF ACCESSIBLE AND/OR VISIBLE. EXAMPLE: PANEL "XX", SW "XY", COND UNIT XXX, XFMR DISC, SW, X-RAY FEEDER XXX, ETC. MARK ALL BRANCH CONDUIT WITH CIRCUIT NUMBERS AT EACH SURFACE MOUNTED PANEL LOCATION. FOR RECESSED PANELS, MARK BRANCH CONDUIT IN CEILING PLENUM, JUST ABOVE PANELS.

COLOR CODE: CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS (FOLLOW LOCAL AHJ OR EXISTING COLOR CODES IF APPLICABLE):

	480Y/277V 3PH4W	208Y/120V 3PH4W	240/120V 3PH4W	120/240V 1PH3W
PHASE A	BROWN	BLACK	BLACK	BLACK
PHASE B	PURPLE	RED	ORANGE (HIGH LEG)	RED
PHASE C	YELLOW	BLUE	BLUE	BLUE
NEUTRAL	GRAY OR WHITE	WHITE	WHITE	WHITE
GROUND	GREEN	GREEN	GREEN	GREEN

ALL PANELS SHALL BE IDENTIFIED USING NAMEPLATES WITH 4 ROWS OF TEXT (LETTER HEIGHT SHALL BE 1/4" MINIMUM), EXAMPLE:
PANEL "XX", SECTION # 1 OF 2,SECT PNL
225 AMPS BUS, 150A MCB, 208Y/120V
FED FROM DIST PANEL "XXX", 1ST FLOOR
FEEDER SIZE 4 # 10 THWN, 1 # 6 G, 2 1/2" C.
PANEL NAMEPLATES SHALL BE ENGRAVED THROUGH THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON BLACK BACKGROUND FOR NORMAL POWER, RED LETTER/BLACK BACKGROUND FOR EMERGENCY POWER. SECURE NAMEPLATES TO EQUIPMENT USING SCREWS OR RIVETS. IN ADDITION TO THE 4 ROWS OF TEXT, ALL EMERGENCY POWER PANELS SHALL BE IDENTIFIED AS TO THE BRANCHES THEY SERVE. PROVIDE LABELS "EMERGENCY LIFE SAFETY BRANCH", "EMERGENCY CRITICAL BRANCH" AND "EMERGENCY EQUIPMENT BRANCH" FOR ALL EMERGENCY PANELS. USE RED LETTER ON BLACK BACKGROUND FOR ALL EMERGENCY PANELS. LETTER HEIGHT SHALL BE 1/4" MINIMUM. ALL SWITCHES, STARTERS, COMBINATION STARTERS / DISCONNECTS, TRANSFORMERS, WIREWAYS, COMMUNICATION CABINETS, JUNCTION AND PULL BOXES ETC SHALL BE SIMILARLY IDENTIFIED. PROVIDE LABEL FOR EACH BRANCH CIRCUIT ON DISTRIBUTION PANELS, SWITCHBOARDS AND MCC'S.
ACCU-1
208V, 3 PHASE, 3 WIRE
FEEDER SIZE 3 # 4 THWN, 1 # 4 G, 2 1/2" C.
FED FROM DIST PANEL "XXX", 1ST FLOOR

ALL EMERGENCY PANELS, JUNCTION BOXES WITH EMERGENCY CIRCUITS, ETC. SHALL BE PAINTED RED.

33 71 73 ELECTRICAL SERVICE
CONTRACTOR SHALL MAKE ARRANGEMENTS FOR TEMPORARY AND PERMANENT SERVICE. COMPLY WITH ALL SERVICE INSTALLATION AND TEMPORARY CONSTRUCTION TRAILERS. PROVIDE TEMPORARY CONSTRUCTION LIGHTING AND POWER. AS SHOWN ON THE DRAWINGS, ONE LINE DIAGRAM. CONTRACTOR SHALL COORDINATE LOCATION OF SERVICE ENTRANCE WITH THE POWER COMPANY. PROVIDE MATERIALS AND EQUIPMENT REQUIRED TO CONNECT THE PROJECT SERVICE TO THE UTILITY SYSTEM. CONTRACTOR SHALL SUBMIT TO THE POWER COMPANY AN APPLICATION FOR SERVICE. CONTRACTOR SHALL SUBMIT SERVICE APPLICATION TO THE POWER COMPANY WITHIN 30 DAYS AFTER AWARD OF PROJECT CONTRACT. CONTRACTOR SHALL SECURE A SERVICE OUTLET AND DATA STATEMENT ("STATEMENT") FROM THE POWER COMPANY. VERIFY THAT THE INFORMATION ON THE STATEMENT IS CORRECT, INCLUDING VOLTAGE, PHASE AND NUMBER OF WIRES, TYPE OF SERVICE, SERVICE FACILITY ARRANGEMENTS, AND LOCATION OF SERVICE OUTLET. PROVIDE A COPY OF THE STATEMENT FOR ENGINEER'S REVIEW. FAILURE TO SUBMIT SERVICE APPLICATION IN A TIMELY MANNER MAY CAUSE PROJECT DELAY AND ADDITIONAL COST. ALL SUCH COST DUE TO CONTRACTOR'S FAILURE TO APPLY AND COORDINATE FOR SERVICE IN A TIMELY MANNER SHALL BE BORNE BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE AND ASSIST OWNER IF APPLICATION IS REQUIRED TO BE SUBMITTED BY OWNER. OUTAGES: SCHEDULE POWER OUTAGES TO AVOID INTERFERENCE WITH THE OWNER'S ACTIVITIES. OBTAIN APPROVAL FROM OWNER AT LEAST 30 DAYS PRIOR TO THE REQUESTED OUTAGES. IF REQUIRED BY THE OWNER, PROVIDE A SCHEDULE SHOWING SEQUENCE AND DURATION OF ALL ACTIVITIES DURING THE REQUESTED OUTAGES.

26 24 13 DISTRIBUTION SWITCHBOARDS
FULL EQUIPMENT SHALL HAVE COPPER BUSES OR WINDINGS.
PROVIDE SWITCHBOARD WHICH PERMITS ACCESS TO BUSES AND DEVICES FOR INSTALLATION AND FUTURE MAINTENANCE FROM THE FRONT, BACK AND SIDES.
BUSES: SHALL BE 98% IACS CONDUCTIVITY, TIN- OR SILVER-PLATED COPPER WITH ROUNDED EDGES. DETERMINE CURRENT RATING FOR SECTION BUS AND BRANCH BUS ON THE BASIS OF SERVICE TO ALL DEVICES INCLUDING SPARES AND SPACES FOR FUTURE ADDITION. SIZE SECTION BUS A MINIMUM OF 60 PERCENT OF THE MAIN BUS RATING. IN EACH SWITCHBOARD SECTION INCLUDE AN UNINSULATED NEUTRAL BUS ON INSULATED BUS SUPPORTS SECURED TO THE SECTION FRAME AND BOLT TO NEUTRAL BUS BARS IN ADJACENT SECTIONS, THUS PROVIDING A CONTINUOUS NEUTRAL BUS. IN EACH SWITCHBOARD SECTION INCLUDE AN UNINSULATED COPPER GROUND BUS BAR FOR THE EQUIPMENT. SECURE THE BAR TO THE UNIT FRAME AND BOLT TO THE GROUND BUS BARS IN ADJACENT SECTIONS, THUS PROVIDING A CONTINUOUS EQUIPMENT GROUND BUS. INCLUDE TERMINATIONS AT THE BUS BAR FOR FEEDER AND BRANCH CIRCUIT GROUNDING CONDUCTORS. THE TERMINATIONS MUST BE EXOTHERMICALLY WELDED ON OR BE OF AN APPROPRIATE COMMERCIAL TYPE. MAKE AREA OF GROUND BUS NOT LESS THAN 1/4 X 2 SQUARE INCHES. EXTEND ALL BUSES THE ENTIRE LENGTH OF THE SWITCHBOARD. BUSES MUST HAVE THE REQUIRED CAPACITY FOR THEIR TOTAL LENGTH. MAKE PROVISIONS FOR EXTENSIONS FROM EITHER END OF BUSES. MAIN AND BRANCH CIRCUIT PROTECTIVE DEVICES: SEE DRAWINGS FOR SIZE. ALL DEVICES SHALL BE 100% RATED.
METERING: EQUIP THE SWITCHBOARD WITH AMMETERS, VOLTMETERS AND DEMAND METERS.

GROUND-FAULT PROTECTION: PROVIDE GROUND FAULT PROTECTION ON CIRCUIT PROTECTIVE DEVICES WHERE INDICATED ON THE DRAWINGS. THE UNIT SHALL INCLUDE COORDINATED CURRENT SENSORS, SOLID STATE RELAY AND MONITOR PANEL OF THE SAME MANUFACTURER. CURRENT SENSORS -PROVIDE GROUND-FAULT PROTECTION AS AN INTEGRAL PART OF THE CIRCUIT PROTECTIVE DEVICE. A RESIDUAL SCHEME SHALL BE USED WHICH INCORPORATES AN ADDITIONAL CURRENT TRANSFORMER WHICH WILL MONITOR THE NEUTRAL.

SUBMITTALS: SUBMIT DIMENSIONED DRAWINGS OF THE SWITCHBOARD, INCLUDING TOP AND BOTTOM VIEWS SHOWING ENTRY AND EXIT SPACE FOR CONDUITS AND BUSWAYS, FRONT AND SIDE ELEVATIONS SHOWING ARRANGEMENT OF ALL DEVICES AND ALSO INCLUDE DIMENSIONAL DATA ON ALL BUSES INCLUDING MATERIAL TYPE AND CAPACITY OF THE BUSES. SUBMIT ONE LINE DIAGRAMS FOR EQUIPMENT BEING PROVIDED. ALSO SUBMIT INFORMATION ON ALL PROTECTIVE DEVICES INCLUDING TYPE RATINGS AND SETTINGS OF ALL TRIPS PROVIDED TO PROTECT THE EQUIPMENT. PROVIDE COORDINATION STUDY OF ALL PROTECTIVE DEVICES. PROVIDE COORDINATION CURVES ON LOG-LOG PAPER FOR THE MAIN PROTECTIVE DEVICE AND FOR THE LARGEST BRANCH CIRCUIT DEVICES. THESE CURVES SHALL ALSO SHOW THE GROUND FAULT PROTECTIVE RELAY.

TESTING: AFTER INSTALLATION AND BEFORE ACCEPTANCE BY THE OWNER, THE CONTRACTOR SHALL PROVIDE THE SERVICES OF AN INDEPENDENT TESTING ORGANIZATION SUCH AS GENERAL ELECTRIC INSTALLATION AND SERVICE ENGINEERING, TESTCO OR WESTINGHOUSE TESTING ENGINEERING SERVICES TO PERFORMANCE TEST ALL GROUND FAULT RELAYS IN ACCORDANCE WITH IEC PARAGRAPH 230.95. THIS TEST SHALL INVOLVE PASSING A PRIMARY CURRENT THROUGH THE CURRENT SENSOR WITH A SUITABLE, LOW-VOLTAGE TEST SET AND TIMER, WHICH SHALL ALLOW VERIFICATION THAT THE GROUND FAULT RELAYS TRACK THEIR PUBLISHED CURVES AND THAT THEY ACTUALLY TRIP THE DEVICES ON WHICH THEY ARE APPLIED. THIS TEST SHALL ALSO INCLUDE THE POLARITY OF THE CURRENT SENSORS AND GIVE AN INDICATION OF SATISFACTORY OPERATION OF VOLTMETERS, AMMETERS AND THEIR SELECTOR SWITCHES. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF THIS TEST DATE 2 DAYS IN ADVANCE SO THAT TESTS CAN BE PROPERLY WITNESSED.

ACCEPTABLE MANUFACTURERS ARE GE, SQUARE D, EATON/CUTLER-HAMMER, AND SIEMENS. MATCH EXISTING WHERE REQUIRED BY OWNER.

26 24 16 PANELBOARDS
ALL PANELBOARDS SHALL HAVE COPPER BUSES. LOAD CENTER TYPE PANELBOARDS ARE NOT ACCEPTABLE AND SHALL NOT BE USED. PROVIDE BREAKERS WHICH ARE QUICK-MAKE AND QUICK-BREAK ON BOTH MANUAL AND AUTOMATIC OPERATION. USE A TRIP-FREE BREAKER WHICH IS TRIP INDICATING, INCORPORATE INVERSE TIME CHARACTERISTICS BY BIMETALLIC OVERLOAD ELEMENTS AND INSTANTANEOUS CHARACTERISTICS BY MAGNETIC TRIP. FOR 2-POLE AND 3-POLE BREAKERS, USE THE COMMON-TRIP TYPE SO THAT AN OVERLOAD OR FAULT ON ONE POLE WILL TRIP ALL POLES SIMULTANEOUSLY. HANDLE TIES ARE NOT ACCEPTABLE. ALL BREAKERS SHALL BE BOLT-ON THERMAL MAGNETIC TYPE. STAB-ON BREAKERS ARE NOT ACCEPTABLE. DO NOT USE TANDEM CIRCUIT BREAKERS. ALL CIRCUIT BREAKERS RATED 100 AMP OR LESS SHALL BE SUITABLE FOR TERMINATING 75-DEGREE C WIRE (BREAKERS RATED FOR ONLY 60-DEGREE C WIRE IS NOT ACCEPTABLE. SEE SECTION 16123 - BUILDING WIRE AND CABLE). ALL EQUIPMENT SHALL BE LABELED. PANELBOARDS SHALL BE LABELED BOTH ON THE COVERPLATES AND THE INTERIORS. ALL EMERGENCY PANELS SHALL BE PAINTED RED WITH RED LETTER NAME TAGS. PANELBOARD DIRECTORIES: PROVIDE A STEEL DIRECTORY FRAME MOUNTED INSIDE THE DOOR WITH A HEAT-RESISTANT TRANSPARENT FACE AND A DIRECTORY CARD FOR IDENTIFYING THE LOADS SERVED. IDENTIFY EACH CIRCUIT WITH LOAD AND LOCATIONS (ROOM NAMES AND ROOM NUMBERS) AND INDICATE WITH TYPED DIRECTORIES. (EXAMPLE: 5 DUPLEX RECEPTABLES, OFFICE, RM XXX). INSTALL THE PANELBOARDS SUCH THAT THE CENTER OF THE SWITCH OR CIRCUIT BREAKER IN THE HIGHEST POSITION WILL NOT BE MORE THAN 6 1/2 FEET ABOVE THE FLOOR OR WORKING PLATFORM.
FOR EACH PANEL, FURNISH & INSTALL ONE SPARE 3/4" CONDUIT FOR EVERY 6 SPARES AND/OR SPACES IN THE PANEL. EACH SPARE CONDUIT SHALL BE INSTALLED WITH PULL STRING STUBBED TO A J-BOX LOCATED IN ACCESSIBLE CEILING/PLENUM SPACE. INSTALL A MINIMUM OF ONE SPARE 3/4" CONDUIT FOR EVERY PANEL SHOWN ON PLANS, EVEN IF THERE ARE NO SPARES/SPACES IN SOME PANELS. ACCEPTABLE MANUFACTURERS ARE GE, SQUARE D, EATON/CUTLER-HAMMER, AND SIEMENS. MATCH EXISTING WHERE REQUIRED BY OWNER.

26 28 19 ENCLOSED SAFETY SWITCHES
ALL SAFETY SWITCHES SHALL BE HEAVY-DUTY TYPE WITH QUICK-MAKE, QUICK-BREAK CONTACTS AND SUITABLE FOR TERMINATING 75-DEGREE C WIRE. PROVIDE EACH SWITCH WITH A GROUND LUG. PROVIDE A DEFEATABLE, FRONT ACCESSIBLE, COIN-PROOF DOOR INTERLOCK TO PREVENT OPERATION OF THE SWITCH OR CIRCUIT BREAKER IN THE ON POSITION AND TO PREVENT TURNING THE SWITCH ON WHEN THE DOOR IS OPEN. PROVIDE INCOMING LINE TERMINALS WITH AN INSULATED SHIELD SO THAT NO LIVE PARTS ARE EXPOSED WHEN THE DOOR IS OPEN. PROVIDE EACH SWITCH WITH AN ISOLATED, FULLY RATED NEUTRAL BLOCK WITH PROVISIONS FOR BONDING THE BLOCK TO THE ENCLOSURE. WHERE FUSIBLE SWITCHES ARE SHOWN, PROVIDE SWITCHES WITH REJECTION-TYPE FUSE HOLDERS WHICH ARE SUITABLE FOR USE WITH FUSES. IN GENERAL, MOUNT SWITCHES SO THAT OPERATING HANDLE IS APPROXIMATELY 44 INCHES ABOVE FINISHED FLOOR. WHERE GROUPS OF SWITCHES ARE SHOWN, PROVIDE SWITCHES WITH REJECTION-TYPE FUSE HOLDERS WHICH ARE SUITABLE FOR USE WITH FUSES. ACCEPTABLE MANUFACTURERS ARE GE, SQUARE D, EATON/CUTLER-HAMMER, AND SIEMENS. MATCH EXISTING WHERE REQUIRED BY OWNER.

26 22 00 DRY TYPE TRANSFORMERS
PROVIDE DRY TYPE QUIET TRANSFORMERS (PER ANSI-C89 AND UL 506), SELF-COOLED NEMA CLASS AA, COPPER WIRE WINDINGS. ALUMINUM-WINDING TRANSFORMER IS ACCEPTABLE. PROVIDED THAT SUBSTITUTE ALUMINUM TRANSFORMER IS IN COMPLIANCE WITH NEC CLEARANCE REQUIREMENTS. TRANSFORMERS MUST MEET OR EXCEED NEMA TP-1 ENERGY EFFICIENCY STANDARDS.

FURNISH FULL-LOAD TAPS IN THE PRIMARY WINDINGS AS FOLLOWS:

KVA RATING	TAPS
3-15 KVA, SINGLE PHASE	(2) 5% TAPS BELOW RATED VOLTAGE
9-15 KVA, THREE PHASE	(2) 5% TAPS BELOW RATED VOLTAGE
25-100 KVA, SINGLE PHASE	(6) 2.5% TAPS, (4) BELOW & (2) ABOVE RATED VOLTAGE
30-300 KVA, THREE PHASE	(6) 2.5% TAPS, (4) BELOW & (2) ABOVE RATED VOLTAGE
167-250 KVA, SINGLE PHASE	(4) 2.5% TAPS, (2) BELOW & (2) ABOVE RATED VOLTAGE
500 KVA, THREE PHASE	(4) 2.5% TAPS, (2) BELOW & (2) ABOVE RATED VOLTAGE

SELECT THE APPROPRIATE TAP SETTING ON TRANSFORMER SO THAT THE ACTUAL SECONDARY VOLTAGE IS ±1/2 OF A TAP SPAN AT FULL LOAD. RECORD THE TRANSFORMER SERIAL NUMBER, KVA RATING, SELECTED TAP SETTING AND SECONDARY VOLTAGE READINGS. SUBMIT COPIES OF THE RECORD TO THE ARCHITECT/ENGINEER.

AVERAQE SOUND LEVELS MUST NOT EXCEED THE FOLLOWING VALUES:

KVA	dB
10-50	45
51-150	50
151-300	55
301-500	60

PROVIDE A 200C INSULATION SYSTEM FOR A MAXIMUM 115-DEGREE C TEMPERATURE RISE OVER A 40-DEGREE C AMBIENT. SPECIAL TRANSFORMERS: 150-DEGREE C RISE FOR SHIELDED ISOLATION TYPE; 115-DEGREE C RISE FOR K-RATED TRANSFORMERS. MAKE TRANSFORMER CABLE CONNECTIONS WITH COMPRESSION-TYPE LUGS SUITABLE FOR TERMINATIONS OF 75C RATED CONDUCTORS. CONSTRUCT CONCRETE PAD FOR FLOOR-MOUNTED TRANSFORMERS. MAINTAIN A MINIMUM OF 6 INCHES FREE AIR SPACE BETWEEN ENCLOSURE AND WALL. MOUNT TRANSFORMERS ON VIBRATION ISOLATING PADS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BLDG STRUCTURE. PROVIDE DOUBLE OR ADDITIONAL LUGS AS REQUIRED WHERE TWO OR MORE SECONDARY FEEDERS ARE CONNECTED TO TRANSFORMERS. PROVIDE VIBRATION ISOLATORS FOR ALL TRANSFORMERS. ACCEPTABLE MANUFACTURERS ARE GE, SQUARE D, EATON/CUTLER-HAMMER, AND SIEMENS. MATCH EXISTING WHERE REQUIRED BY OWNER.

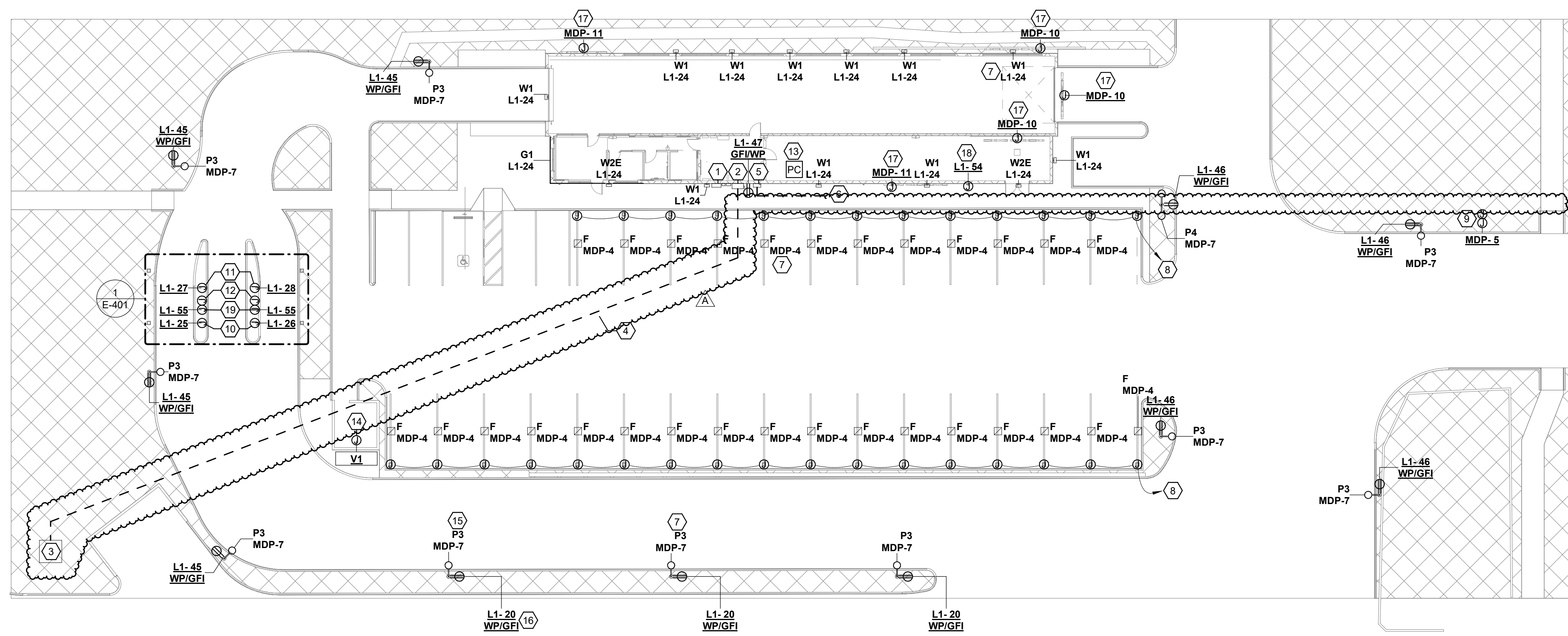
METHOD architecture
2118 LAMAR, SUITE 200
HOUSTON, TEXAS 77003
(713) 842-7500

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NO.	DATE	ISSUE FOR PERMIT	
1	08-09-22	ISSUE FOR PERMIT	
2	A	08-09-26	IFC

KCI
TECHNOLOGIES
REGISTERED ENGINEERING FIRM F-10573

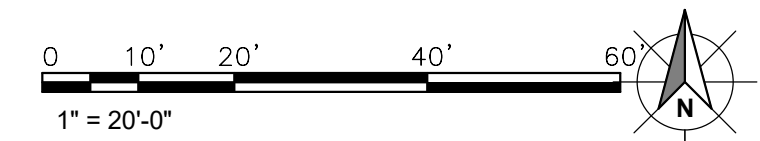
SUDS DELUXE CAR WASH
PM:JDP DE:JDP
PROJECT:
792208473
SHEET:
E-003



1 ELECTRICAL SITE PLAN
1" = 20'-0"

KEYED NOTES	
1	PROVIDE CT CABINET, PT CAN, AND METER CAN PER LOCAL UTILITY COMPANY STANDARDS.
2	PROVIDE NEW SERVICE ENTRANCE DISCONNECT. SEE ONE-LINE DIAGRAM ON SHEET E-501 FOR SIZING.
3	COORDINATE LOCATION OF NEW UTILITY COMPANY POWER PAD MOUNTED TRANSFORMER WITH UTILITY COMPANY. FIELD VERIFY AND COORDINATE FINAL LOCATION WITH UTILITY COMPANY/OWNER/ARCHITECT/ALL OTHER PERTINENT CONSTRUCTION PARTIES PRIOR TO INSTALLATION.
4	PROPOSED ROUTING OF UNDERGROUND SERVICE FEEDERS. COORDINATE EXACT ROUTING WITH CENTERPOINT AND CIVIL ENGINEERING DRAWINGS TO AVOID CONFLICTS WITH OTHER UTILITIES.
5	PROPOSED LOCATION OF PHONE PEDESTAL. PROVIDE (2) 4" CONDUITS WITH PULLSTRING FOR TELEPHONE AND CABLE SERVICE. ONE CONDUIT EACH SERVICE. FIELD VERIFY EXACT CONDUIT SIZES AND QUANTITIES WITH SERVICE PROVIDERS; MAY REDUCE TO SMALLER SIZE PER SERVICE PROVIDERS STANDARDS. COORDINATE EXACT POINTS OF TERMINATION WITH LOCAL PHONE COMPANY, CABLE COMPANY, OWNER, AND ALL OTHER NECESSARY ENTITIES BEFORE ROUGH-IN AND INSTALLATION. PROVIDE AS NEEDED FOR A COMPLETE AND OPERATING SYSTEM.
6	PROPOSED ROUTING OF UNDERGROUND CONDUIT FOR TELEPHONE AND CABLE. COORDINATE EXACT ROUTING AND TERMINATION WITH TELEPHONE AND CABLE SERVICE PROVIDERS AND CIVIL ENGINEERING DRAWINGS TO AVOID CONFLICTS WITH OTHER UTILITIES.
7	ROUTE ELECTRICAL CIRCUIT FOR EXTERIOR FIXTURES TO LIGHTING CONTROL PANEL FOR TIMECLOCK CONTROL AND ROOF MOUNTED PHOTOCELL.
8	CONTRACTOR SHALL PROVIDE 3/4" CONDUIT BETWEEN ARCHES FOR AIR LINE. REFER TO VACUUM VENDOR DRAWINGS FOR ADDITIONAL INFORMATION.
9	CONTRACTOR TO PROVIDE (1) JUNCTION BOX FOR POWER AND (1) JUNCTION BOX FOR DATA FOR NEW SIGN. CONTRACTOR TO RUN A 1" EMPTY CONDUIT WITH PULL STRING FOR FUTURE DATA. CONTRACTOR TO VERIFY EXACT LOCATION OF SIGN WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN. PROVIDE A 30A/1P/600V/N3R/NF DISCONNECT. HOMERUN VIA TIMECLOCK.
10	PROVIDE JBOX AND 120V POWER FOR EXPRESS PURCHASE TERMINAL (XPT) UNIT. COORDINATE FINAL LOCATION AND CONDUIT REQUIREMENTS WITH VENDOR PRIOR TO ROUGH-IN AND INSTALLATION.
11	PROVIDE JBOX AND 120V POWER FOR GATE SYSTEM. COORDINATE FINAL LOCATION AND CONDUIT REQUIREMENTS WITH VENDOR PRIOR TO ROUGH-IN AND INSTALLATION.
12	PROVIDE JBOX FOR CASHIER COMMUNICATIONS. PROVIDE WITH 1" COMMUNICATIONS CONDUIT. COORDINATE FINAL LOCATION AND CONDUIT ROUTING WITH OWNER/VENDOR.
13	PROVIDE INTERMATIC EK4135S PHOTOCELL OR SIMILAR AND HOMERUN THE EXTERIOR LIGHTS VIA IT. MOUNT PHOTOCELL ON ROOF. COORDINATE EXACT LOCATION WITH OWNER/VENDOR PRIOR TO ROUGH-IN.
14	VACUUM CLEANER TO BE ROUTED TO MOTOR CONTROL CENTER. SEE SHEET E-602 FOR CIRCUIT, CONDUIT, AND WIRE SIZING. COORDINATE EXACT LOCATION OF VACUUM CLEANER WITH EQUIPMENT VENDOR. SEE EQUIPMENT VENDOR DRAWINGS FOR CONTROL VOLTAGE CONNECTIONS TO CONTROLLER AND BALLAST PANEL. COORDINATE FINAL ELECTRICAL REQUIREMENTS WITH VENDOR PRIOR TO ROUGH-IN. PROVIDE WITH A 60A/3P/600V/N3R/3-45AF DISCONNECT TO SERVE AS THE LOCAL DISCONNECTING MEANS AND OVERLOAD PROTECTION. COORDINATE MOUNTING LOCATION WITH OWNER.
15	PROVIDE (2) 1" EMPTY CONDUITS WITH PULL STRING TO EACH POLE FIXTURE FOR CAMERAS FOR FUTURE INSTALLATION FOR SECURITY SYSTEM WIRING. TERMINATE CONDUITS AT LOCATIONS BY OWNER. TYPICAL FOR ALL POLES.
16	PROVIDE WEATHERPROOF GFI RECEPTACLE MOUNTED AT LIGHT POLE BASE. TYPICAL FOR ALL POLES.
17	PROVIDE JUNCTION BOX AND 277V POWER FOR LED BUILDING SIGN. COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENTS WITH SIGNAGE VENDOR PRIOR TO ROUGH-IN AND INSTALLATION. CONNECT SIGN TO LIGHTING CONTRACTOR FOR TIMECLOCK AND MANUAL OVERRIDE CONTROL. PROVIDE WITH NEMA 3R MOTOR RATED TOGGLE SWITCH TO SERVE AS LOCAL DISCONNECTING MEANS.
18	PROVIDE JBOX AND 120V POWER FOR MAT CLEANER. COORDINATE FINAL ELECTRICAL REQUIREMENTS AND LOCATION WITH OWNER/VENDOR PRIOR TO ROUGH-IN AND INSTALLATION.
19	PROVIDE JBOX AND 120V POWER FOR MENU SIGNS. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. CIRCUIT TO BE ROUTED THROUGH LIGHTING CONTRACTOR FOR TIMECLOCK AND ON/OFF CONTROL.

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MECH/PLBG EQUIPMENT SCHEDULE

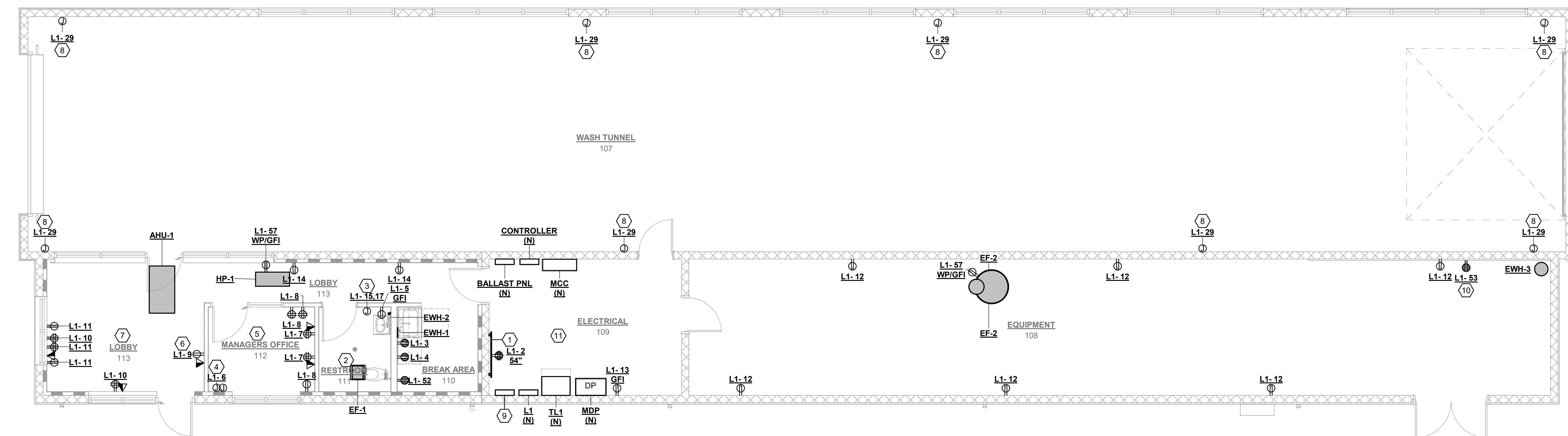
EQPM NAME	LOAD TYPE	VOLTS/AMPS/POLES	Circuit	NOTES
HP-1	H	208 V / 29 A / 2P	L1-48.50	1,2
EF-1	MT	120 V / 1 A / 1P	L1-49	3,4
EF-2	MT	120 V / 2 A / 1P	L1-51	3
EWH-1	MIS	277 V / 15 A / 1P	MDP-8	5
EWH-2	MIS	277 V / 30 A / 1P	MDP-9	6
EWH-3	MIS	120 V / 13 A / 1P	L1-56	7

NOTES:
 VERIFY ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT WITH MANUFACTURER/VENDOR PRIOR TO ROUGH-IN AND INSTALLATION. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.

1. PROVIDE ELECTRIC DISCONNECT FOR LOCAL DISCONNECTING MEANS. ELECTRICAL DISCONNECT TO BE 60A/2P/240V/N3R/NF. COORDINATE MOUNTING LOCATION WITH HVAC/PLBG CONTRACTOR IN FIELD.
2. OUTDOOR UNIT 'HP-1' TO SERVE INDOOR FAN COIL 'AHU-1' VIA SINGLE POINT CONNECTION. COORDINATE WIRING REQUIREMENTS AND DISCONNECTING MEANS WITH MANUFACTURER AND PROVIDE ALL ACCESSORIES FOR A COMPLETE AND OPERATING SYSTEM.
3. PROVIDE WITH MOTOR RATED TOGGLE SWITCH.
4. FAN TO BE INTERLOCKED WITH ROOM LIGHTING SWITCH.
5. PROVIDE ELECTRIC DISCONNECT FOR LOCAL DISCONNECTING MEANS. ELECTRICAL DISCONNECT TO BE 30A/1P/600V/N1/NF. COORDINATE MOUNTING LOCATION WITH HVAC/PLBG CONTRACTOR IN FIELD.
6. PROVIDE ELECTRIC DISCONNECT FOR LOCAL DISCONNECTING MEANS. ELECTRICAL DISCONNECT TO BE 60A/1P/600V/N1/NF. COORDINATE MOUNTING LOCATION WITH HVAC/PLBG CONTRACTOR IN FIELD.
7. PROVIDE ELECTRIC DISCONNECT FOR LOCAL DISCONNECTING MEANS. ELECTRICAL DISCONNECT TO BE 30A/1P/240V/N1/NF. COORDINATE MOUNTING LOCATION WITH HVAC/PLBG CONTRACTOR IN FIELD.

KEYED NOTES

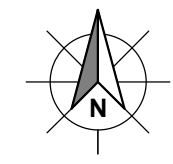
- 1 TELEPHONE TERMINAL BOARD: PROVIDE 4'X4'X3/4" THICK PLYWOOD BOARD, PAINTED AND TREATED WITH FIRE RETARDANT. INSTALL OUTLETS FLUSH WITH FACE OF PLYWOOD. VERIFY EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH TENANT AND IT VENDOR PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE A TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) MOUNTED ON BOARD (COORDINATE LOCATION W/TELECOMMUNICATIONS CONTRACTOR). PROVIDE #6 WIRE WITH GREEN INSULATION CONNECTED TO THE TGB. ROUTE THE #6 WIRE IN 3/4" C BACK TO PANEL AND CONNECT TO MAIN GROUND BUS.
- 2 COORDINATE BREAKROOM REQUIREMENTS AND EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN AND INSTALLATION. COORDINATE MOUNTING HEIGHTS WITH ARCHITECT. FOR EACH RECEPTACLE BEHIND A PERMANENTLY AFFIXED PIECE OF EQUIPMENT, PROVIDE A GFI CIRCUIT BREAKER. FOR ALL OTHER RECEPTACLES PROVIDE A GFI RECEPTACLE.
- 3 COORDINATE HAND DRYER LOCATION AND REQUIREMENTS WITH VENDOR/ARCH. PROVIDE WITH MOTOR RATED TOGGLE SWITCH.
- 4 CONTRACTOR TO PROVIDE JBOX WITH 3/4" CONDUIT WITH PULL STRING FOR SECURITY POWER AND JBOX WITH 3/4" CONDUIT FOR DATA LOCATED IN CEILING. CONFIRM FINAL REQUIREMENTS AND LOCATIONS WITH SECURITY VENDOR.
- 5 MANAGER'S OFFICE POWER AND DATA LOCATIONS ARE FOR REFERENCE ONLY. VERIFY EXACT LOCATION WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
- 6 PROVIDE RECEPTACLE AND DATA OUTLET FOR SECURITY TELEVISION. PROVIDE RECESSED GLOCK TYPE OUTLETS TO ENSURE TV IS MOUNTED FLUSH ON THE WALL. PROVIDE ONE (1) 1-1/2" C W/PULLSTRING FOR AV AND DATA. MOUNT 84" AFF. VERIFY EXACT LOCATION WITH TENANT/ARCHITECT AND EXISTING STRUCTURE PRIOR TO ROUGH-IN AND INSTALLATION.
- 7 LOBBY RECEPTION DESK POWER AND DATA LOCATIONS ARE FOR REFERENCE ONLY. VERIFY EXACT LOCATION WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
- 8 CONTRACTOR TO PROVIDE E-STOPS. COORDINATE EXACT ROUTING AND REQUIREMENTS WITH EQUIPMENT VENDOR. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE E-STOPS WITH NEMA 4 ENCLOSURES AND COORDINATE E-STOP WIRING WITH TUNNEL VENDOR DRAWINGS.
- 9 PROVIDE LIGHTING CONTACTORS IN NEMA 1 ENCLOSURE AND TIMECLOCK. SEET LIGHTING CONTROL DETAIL ON SHEET E-511 FOR MORE INFORMATION AND TYPES.
- 10 PROVIDE DEDICATED DUPLEX FOR WASHING MACHINE. COORDINATE ELECTRICAL REQUIREMENTS AND PLUG NEMA CONFIGURATION WITH VENDOR. COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN AND INSTALLATION.
- 11 COORDINATE FINAL LAYOUT OF ELECTRICAL EQUIPMENT IN ELECTRICAL ROOM WITH VENDOR. SHOWN EQUIPMENT SIZES ARE DIAGRAMATIC ONLY AND FINAL SIZES SHALL BE CONFIRMED WITH VENDOR PRIOR TO ROUGH-IN AND INSTALLATION.



1 ELECTRICAL POWER PLAN
 3/16" = 1'-0"

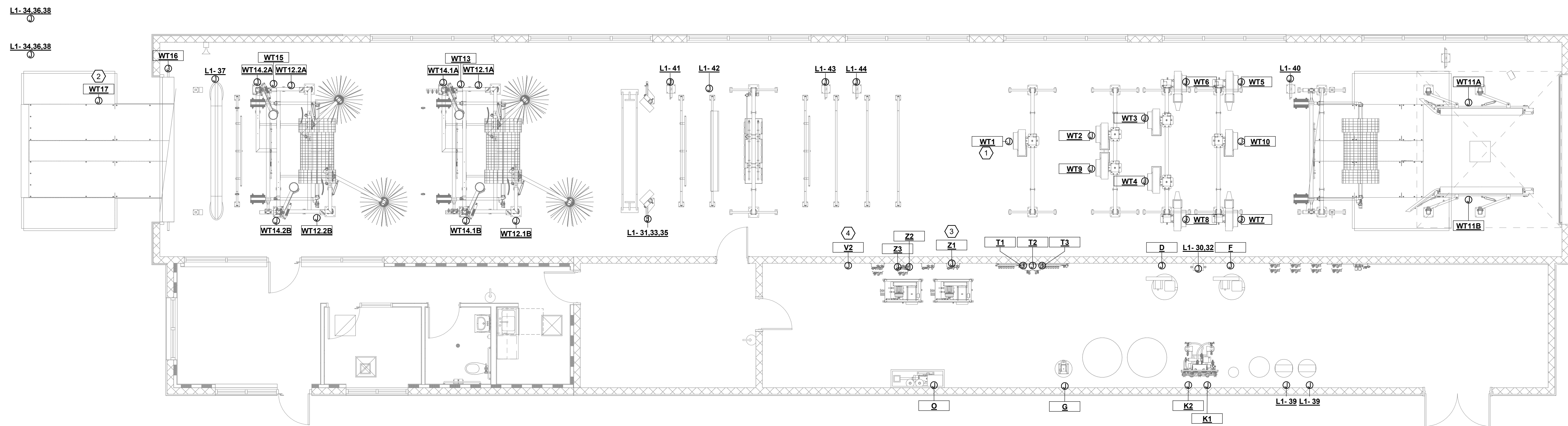
REVISIONS:

08-08-22	ISSUE FOR PERMIT
A-05-06-28	IFC

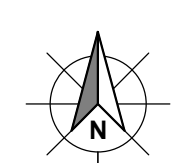


KEYED NOTES	
1	CONTRACTOR TO PROVIDE BLOWER WITH FUSED DISCONNECT TO SERVE AS OVERLOAD PROTECTION IF NO OVERLOAD PROTECTION IS PROVIDED INTEGRAL TO THE EQUIPMENT OR IN THE MOTOR CONTROL CENTER. FUSED DISCONNECT TO BE 30A/3P/600V/N4(3)-30AF. TYPICAL FOR ALL BLOWERS
2	CONTRACTOR TO PROVIDE CONVEYOR WITH FUSED DISCONNECT TO SERVE AS OVERLOAD PROTECTION IF NO OVERLOAD PROTECTION IS PROVIDED INTEGRAL TO THE EQUIPMENT OR IN THE MOTOR CONTROL CENTER. FUSED DISCONNECT TO BE 60A/3P/600V/N4(3)-35AF.
3	CONTRACTOR TO PROVIDE HIGH PRESSURE PUMP WITH FUSED DISCONNECT TO SERVE AS OVERLOAD PROTECTION IF NO OVERLOAD PROTECTION IS PROVIDED INTEGRAL TO THE EQUIPMENT OR IN THE MOTOR CONTROL CENTER. FUSED DISCONNECT TO BE 30A/3P/600V/N1(3)-30AF. TYPICAL FOR ALL HIGH PRESSURE PUMPS
4	CONTRACTOR TO PROVIDE VACUUM WITH FUSED DISCONNECT TO SERVE AS OVERLOAD PROTECTION IF NO OVERLOAD PROTECTION IS PROVIDED INTEGRAL TO THE EQUIPMENT OR IN THE MOTOR CONTROL CENTER. FUSED DISCONNECT TO BE 60A/3P/600V/N1(3)-45AF.

- GENERAL NOTES**
- A. COORDINATE FINAL LOCATION AND ELECTRICAL REQUIREMENTS OF ALL CAR WASH EQUIPMENT ROOM AND TUNNEL EQUIPMENT WITH VENDOR/OWNER PRIOR TO ROUGH-IN AND INSTALLATION.
 - B. COORDINATE EQUIPMENT ELECTRICAL REQUIREMENTS INCLUDING VOLTAGE, PHASE, WATTAGE, AND CONNECTION TYPE WITH VENDOR. NOTIFY ELECTRICAL ENGINEER OF ANY DISCREPANCIES BETWEEN EQUIPMENT SUBMITTALS AND DRAWINGS.
 - C. SEE CAR WASH VENDOR DRAWINGS FOR CONTROL VOLTAGE AND WIRING REQUIREMENTS. COORDINATE CONTROL SCHEDULES WITH OWNER.
 - D. FOR ALL EQUIPMENT TAGGED WITH A CIRCUIT NAME AND NUMBER, SEE PANEL SCHEDULES ON SHEET E-601 FOR WIRE AND CONDUIT SIZING.
 - E. FOR ALL BOXED EQUIPMENT TAGS SEE MOTOR CONTROL CENTER ON SHEET E-602 FOR CIRCUITING AND OVERCURRENT PROTECTION REQUIREMENTS.



1 ELECTRICAL EQUIPMENT PLAN
 3/16" = 1'-0"

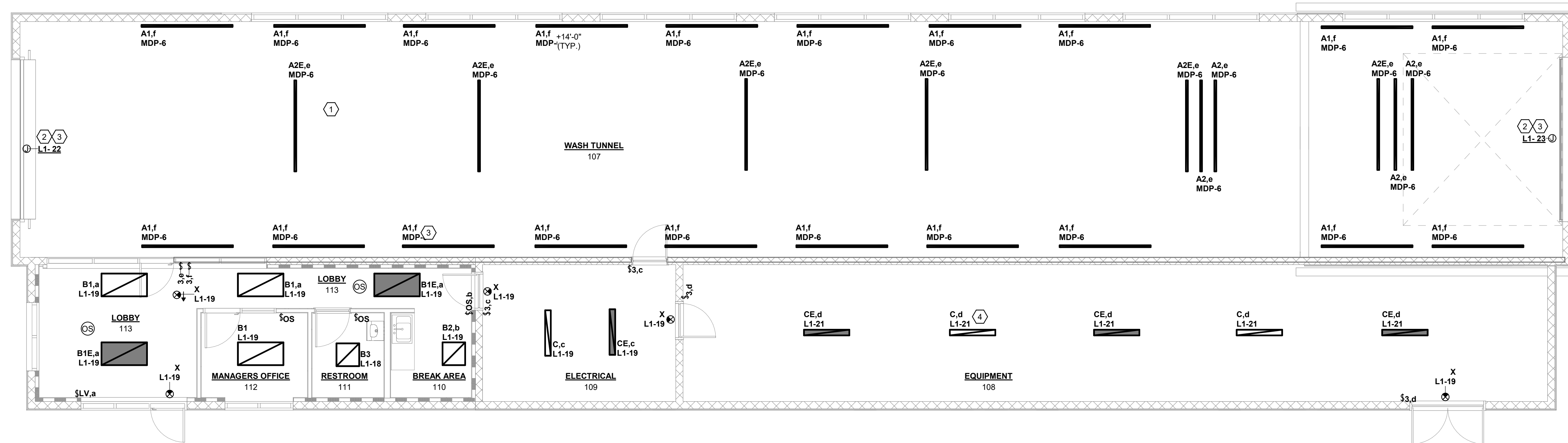


SPACE TYPE	DIMMING	MANUAL OVERRIDE	VACANCY CONTROLS	AUTOMATIC ON - FULL POWER	AUTOMATIC ON - 50% POWER	MANUAL - ON	TIME-SWITCH CONTROLS	NOTES
MANAGER'S OFFICE	No	Yes	Yes	No	No	Yes	No	
RESTROOM	No	Yes	Yes	Yes	No	No	No	1
LOBBY	No	Yes	Yes	Yes	No	No	No	1
ELEC ROOM	No	Yes	No	No	No	No	No	2
EQUIPMENT ROOM	No	Yes	No	No	No	No	Yes	
WASH TUNNEL	No	Yes	No	No	No	No	Yes	
EXTERIOR	No	Yes	No	No	No	No	Yes	3
SIGNAGE	No	Yes	No	No	No	No	Yes	3

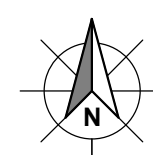
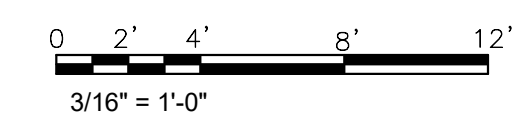
- ### KEYED NOTES
- COORDINATE FINAL LOCATION AND QUANTITY OF TUNNEL LIGHTING WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN AND INSTALLATION.
 - PROVIDE ROUGH-IN AND FINAL CONNECTION TO ILLUMINATED SIGN. PROVIDE 30A/1P/240V/N4/NF DISCONNECT SWITCH. PROVIDE WITH ISOLATED/DEDICATED GROUND. COORDINATE SIGN LOCATION WITH SIGN CONTRACTOR, OWNER AND ARCHITECT. ROUTE ELECTRICAL CIRCUIT VIA TIMECLOCK.
 - TUNNEL LIGHTING FIXTURES AND SIGN CIRCUITS CONTROLLED BY TUNNEL CONTROL BOX TO PROVIDE TIME CLOCK FOR CONTROL OF LIGHTING. TYPICAL FOR ALL FIXTURES ON THIS LIGHTING CIRCUIT. COORDINATE ON/OFF WITH OWNER. COORDINATE NIGHT LIGHTING AND SECURITY LIGHTING REQUIREMENTS AND LOCATIONS WITH OWNER.
 - LIGHTING CIRCUIT CONTROLLED BY PROGRAMMABLE TIME CLOCK FOR CONTROL OF LIGHTING. TYPICAL FOR ALL FIXTURES ON THIS LIGHTING CIRCUIT. COORDINATE ON/OFF WITH OWNER. COORDINATE NIGHT LIGHTING AND SECURITY LIGHTING REQUIREMENTS AND LOCATIONS WITH OWNER.

ALL CONTROLS TO COMPLY WITH SECTION C405.2 OF THE IECC. PROVIDE ALL NECESSARY POWER PACKS FOR A COMPLETE AND OPERATING SYSTEM

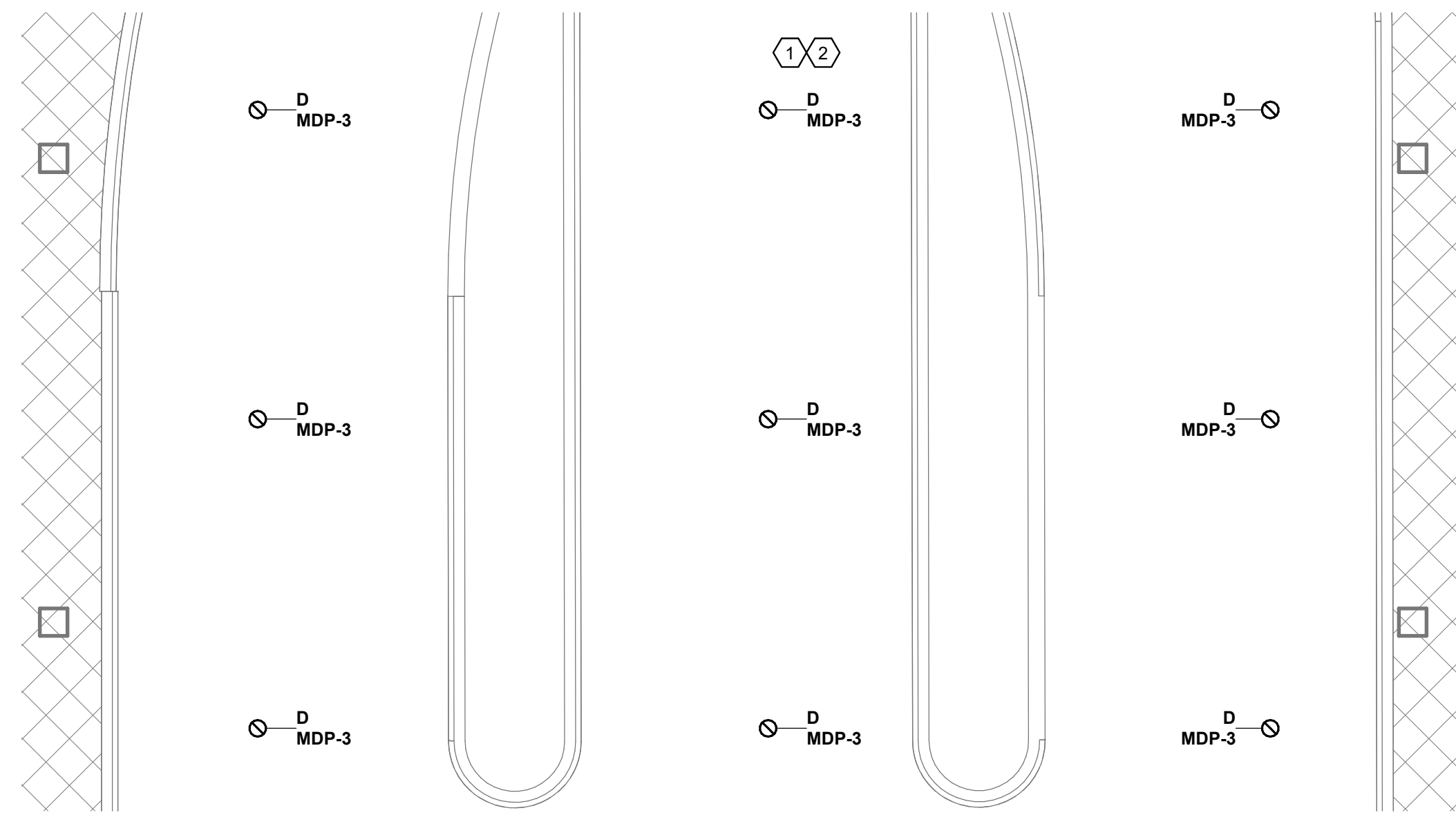
- NOTES:
- HALLWAY, RECEPTION, AND LOBBY AREAS SHALL BE CONTROLLED VIA FULL POWER AUTOMATIC-ON CONTROLS PER THE EXCEPTION TO OCCUPANT SENSOR CONTROL FUNCTION IN SECTION C405.2.1.1 OF THE IECC.
 - PER NEC 110.26(D), LIGHTING IN ROOM CONTAINING SERVICE EQUIPMENT, SWITCHBOARDS, PANELBOARDS, OR MOTOR CONTROL CENTERS SHALL BE EXCLUDED FOR REQUIREMENTS FOR AUTOMATIC CONTROLS.
 - MANUAL OVERRIDE FOR EXTERIOR AND SIGNAGE LIGHTING SHALL BE PROVIDED BY OPEN LIGHTING CONTACTORS LOCATED IN LIGHTING CONTROL PANEL. ALL CONTACTORS SHALL BE LABELED AND IDENTIFIED TO THE CIRCUIT THEY CONTROL.



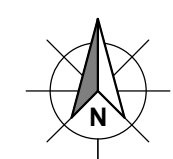
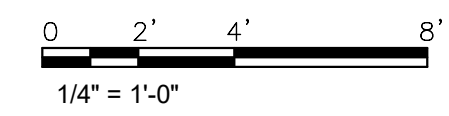
1 ELECTRICAL LIGHTING PLAN
3/16" = 1'-0"



KEYED NOTES	
1	CIRCUIT CONTROLLED ON-OFF WITH CONTACTOR AND TIMECLOCK.
2	PROVIDE (2) 1" EMPTY CONDUITS WITH PULL STRING TO CANOPY FOR CAMERAS FOR FUTURE INSTALLATION FOR SECURITY SYSTEM WIRING. TERMINATE CONDUITS AT LOCATIONS BY OWNER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH SECURITY VENDOR.



1 ENLARGED SITE PLAN - CASHIER CANOPY
1/4" = 1'-0"



SUDS DELUXE CAR WASH

PM: JDP DE: JDP
PROJECT:
792208473
SHEET:
E-401
ELECTRICAL
ENLARGED PLANS

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
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801 TRAVIS, SUITE 2000
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Texas Registered Engineering Firm F-10573

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METHOD architecture
2118 LAMAR, SUITE 200
HOUSTON, TEXAS 77003
(713) 842-7500

KEYED NOTES	
1	PROVIDE WITH NEW USED SERVICE ENTRANCE DISCONNECT. DISCONNECT TO BE 800A 3P/600V/3R/3-800AF.
2	PROVIDE CT CABINET, PT CAN, AND METER CAN PER LOCAL UTILITY STANDARDS.
3	SERVICE ENTRANCE FEEDERS TO BE (2) SETS OF 4-#600 IN 3-1/2" C.

GENERAL NOTES

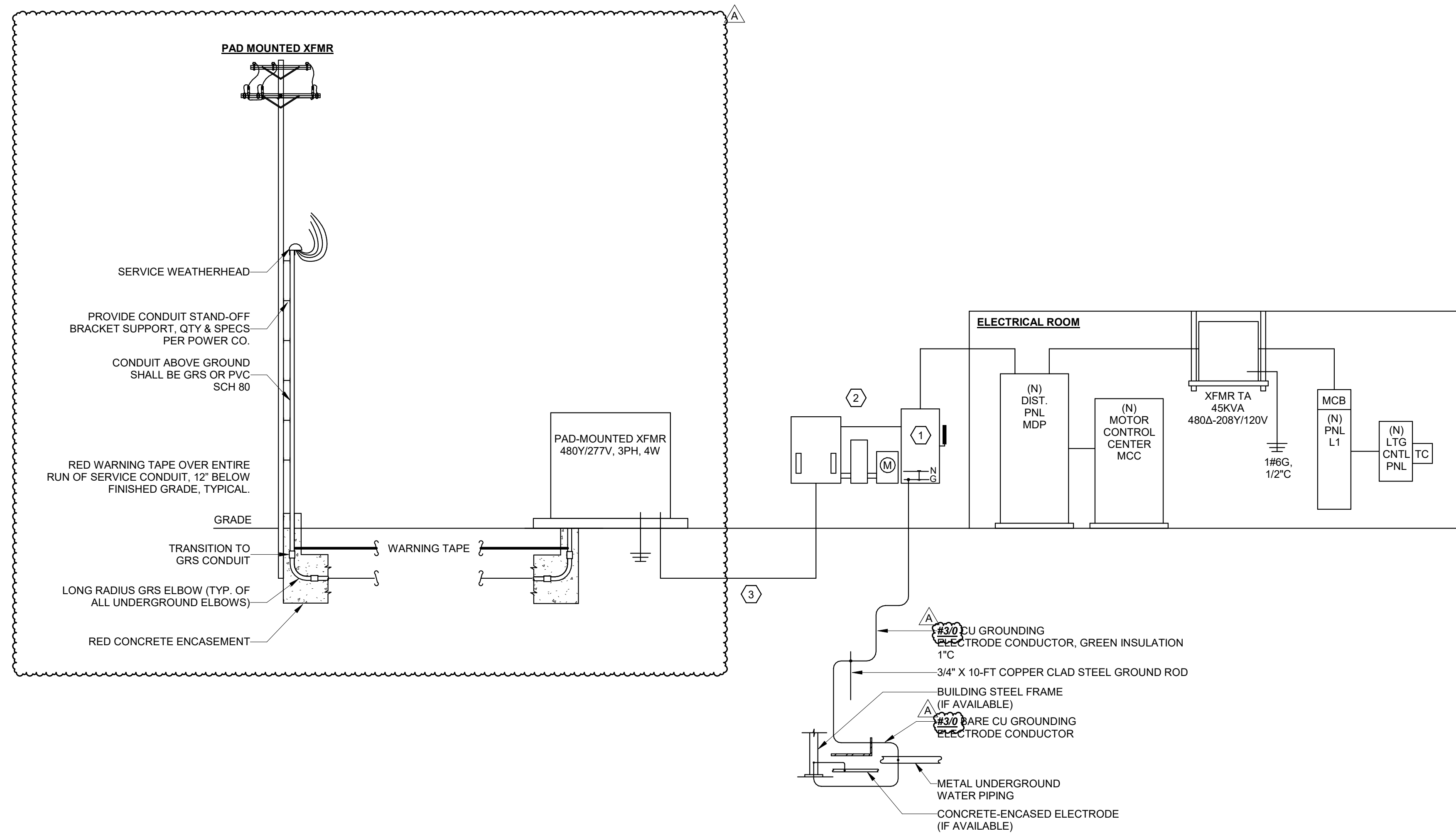
- ALL EQUIPMENT IS EXISTING UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL PROVIDE AN ARC FLASH STUDY FOR ALL NEW ELECTRICAL EQUIPMENT.
- A PERMANENTLY AFFIXED LABEL SHALL BE APPLIED WITH THE FAULT CURRENT AT THE TIME OF INSTALLATION AND CALCULATION PER NEC ARTICLE 110.24A. THE LABEL SHALL BE 2" x 3" IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND. THIS LABEL SHALL ALSO INCLUDE THE DATE OF THE CALCULATION.

CONDUIT/WIRE NOTES

- SEE FEEDER & PANEL SCHEDULES FOR CONDUIT/WIRE SIZE.
- ALL WIRES SHALL HAVE TYPE "THHN/THWN" INSULATION TYPICAL UNLESS NOTED OTHERWISE.
- ALL INDOOR CONDUITS SHALL BE EMT TYPICAL UNLESS NOTED OTHERWISE.
- ALL OUTDOOR CONDUITS SHALL BE RIGID GALV STEEL TYPICAL UNLESS NOTED OTHERWISE.
- ALL UNDERGROUND CONDUITS SHALL BE PVC SCH 40 TYPICAL UNLESS NOTED OTHERWISE.

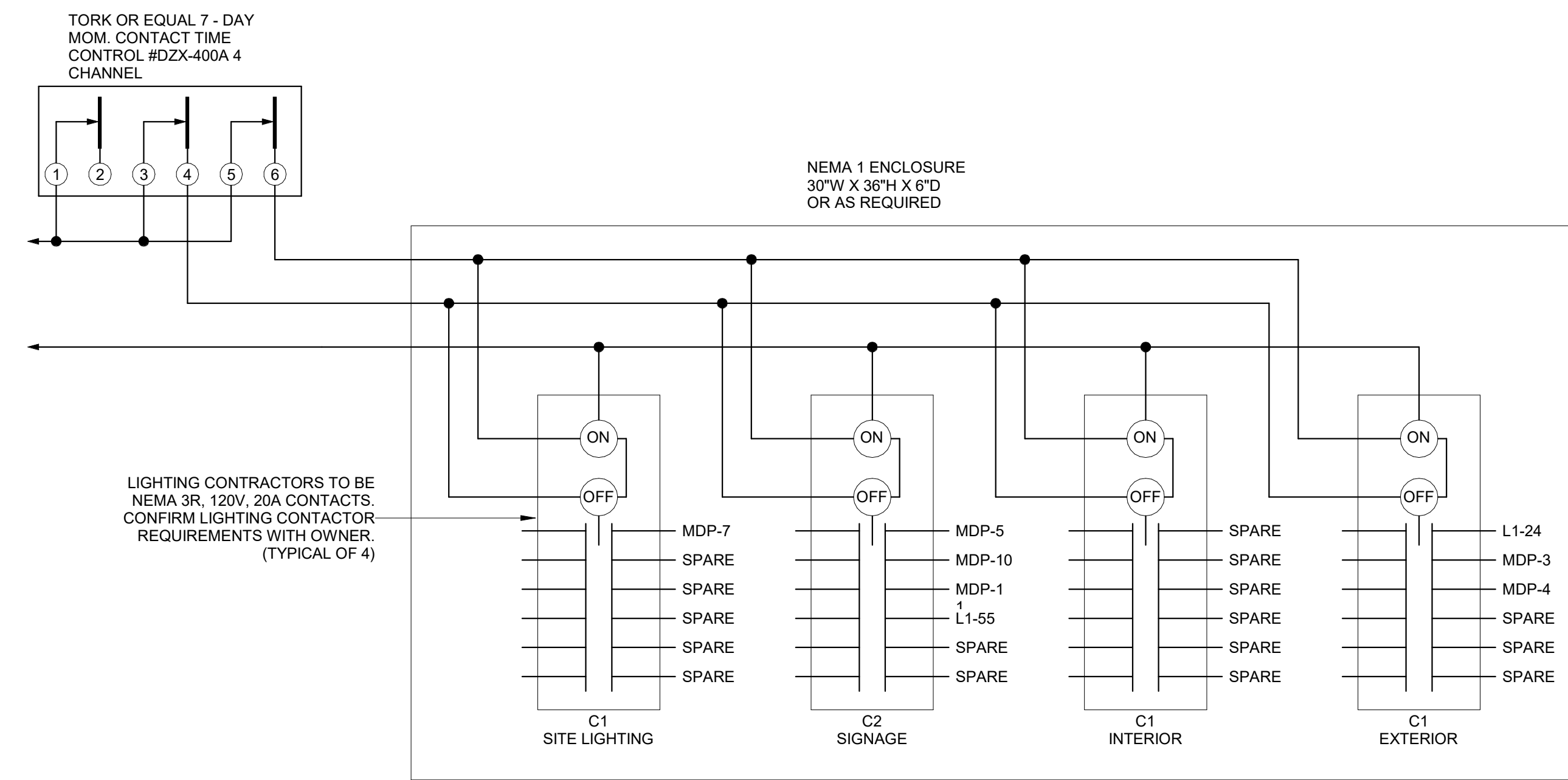
FEEDER SCHEDULE						
EQPT	BUS/EQP TRATING	MAIN RATING	MCB I/N	WIRE SIZE	CONDUIT SIZE	FEEDER RATING
MDP	800 A	800 A	No	2 runs of 3-#600, 1-#10	3 1/2"	840 A
L1	225 A	150 A	Yes	3-#110, 1-#170, 1-#8	1 1/2"	150 A
MCC	600 A	500 A	No	2 runs of 3-#250, 1-#250, 1-#2	3"	510 A

SHORT CIRCUIT RATING SCHEDULE			
EQPT	DIST. FROM UPSTREAM EQPT	CALCULATED SHORT CIRCUIT CURRENT	EQPT A.I.C. RATING
MDP	134' - 2 3/16"	33,801 A	65,000 A
L1	18' - 8 31/32"	3,740 A	10,000 A
MCC	32' - 0 7/32"	30,151 A	35,000 A

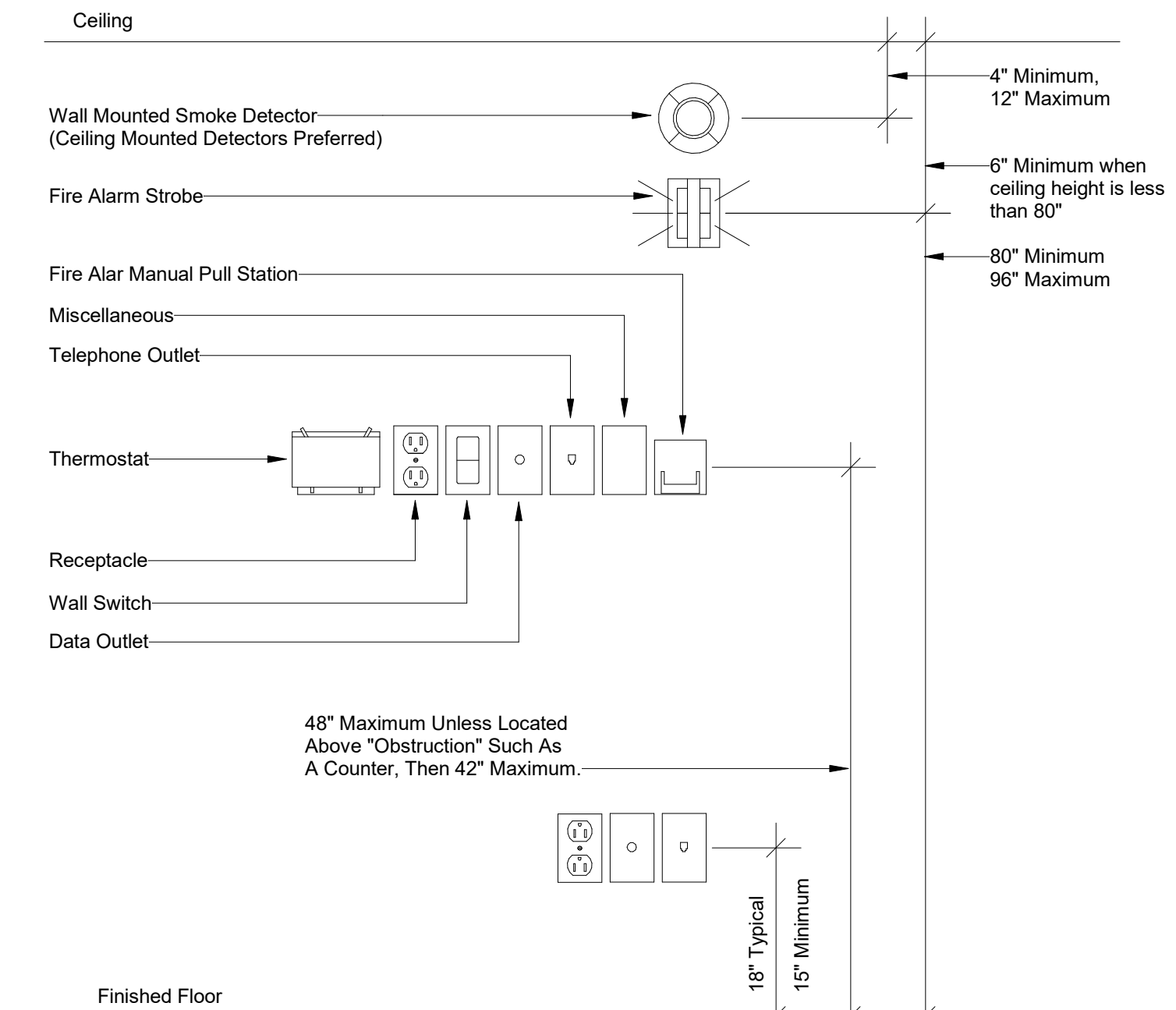


1 ONE-LINE DIAGRAM
NOT TO SCALE

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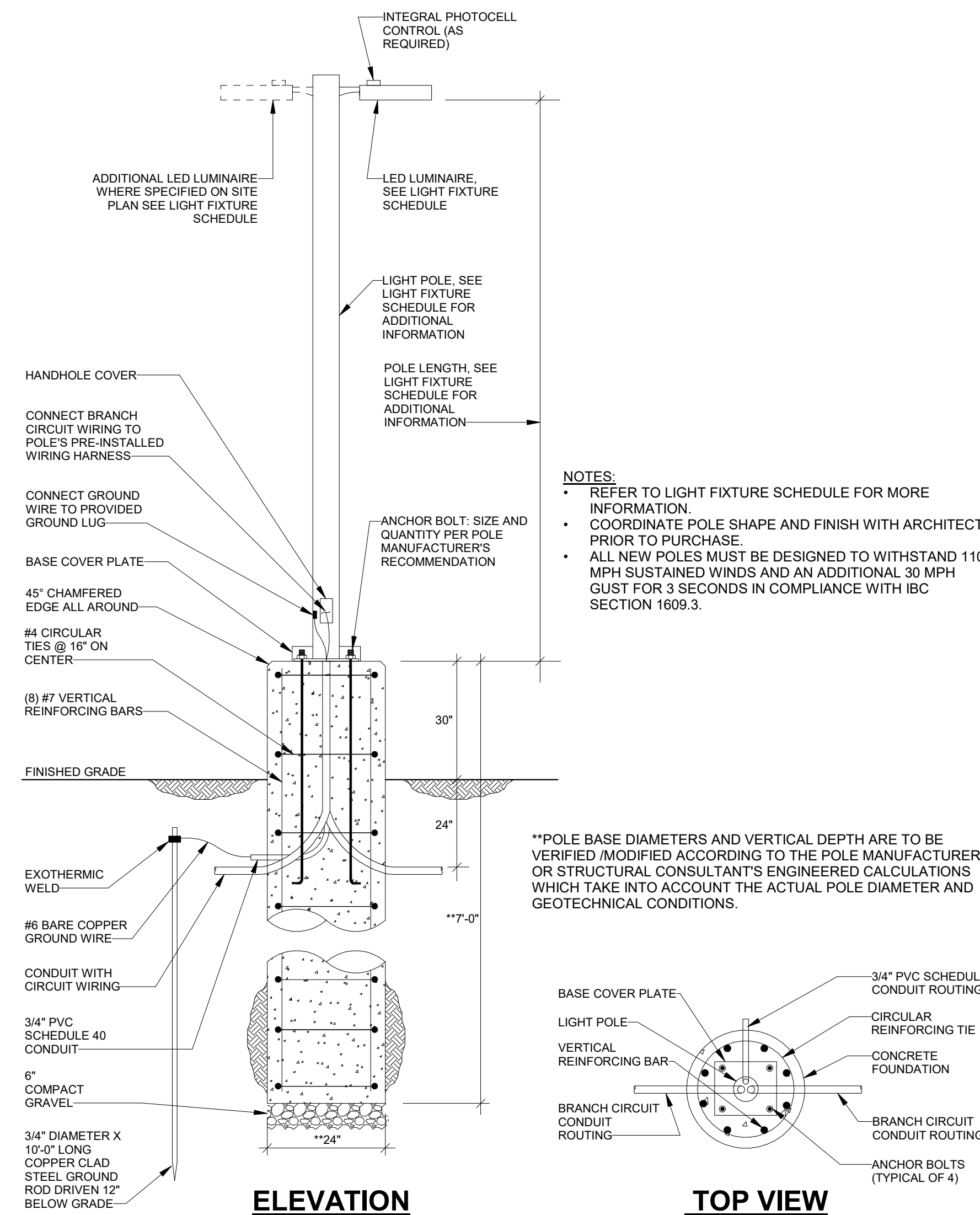


4 LIGHTING CONTROL DETAIL
NOT TO SCALE

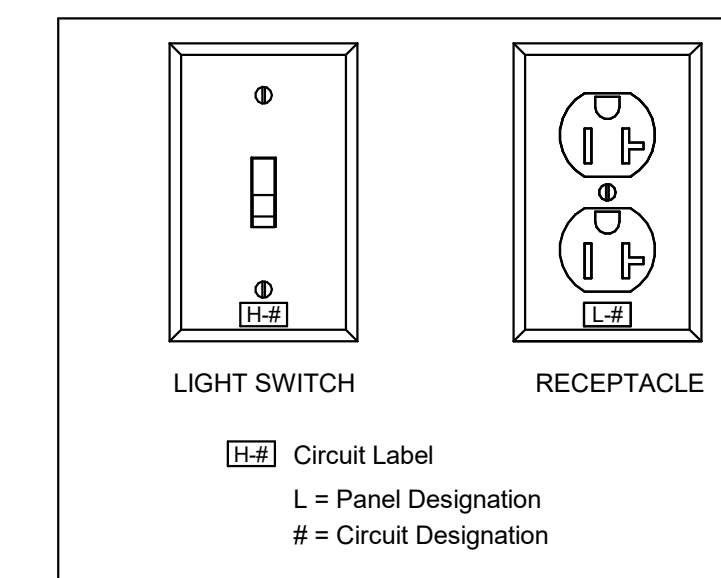


1. NOTE: MOUNTING HEIGHT OF DEVICES SHALL BE IN ACCORDANCE WITH THE 'AMERICAN WITH DISABILITIES ACT'. ALL MOUNTING HEIGHTS ARE MEASURED FROM FINISHED FLOOR TO CENTER OF DEVICE. MOUNTING HEIGHTS SHOWN ON THE ARCHITECT DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE. VERIFY EXACT MOUNTING HEIGHT REQUIRED WITH ARCHITECT AND INSTALL ACCORDINGLY.

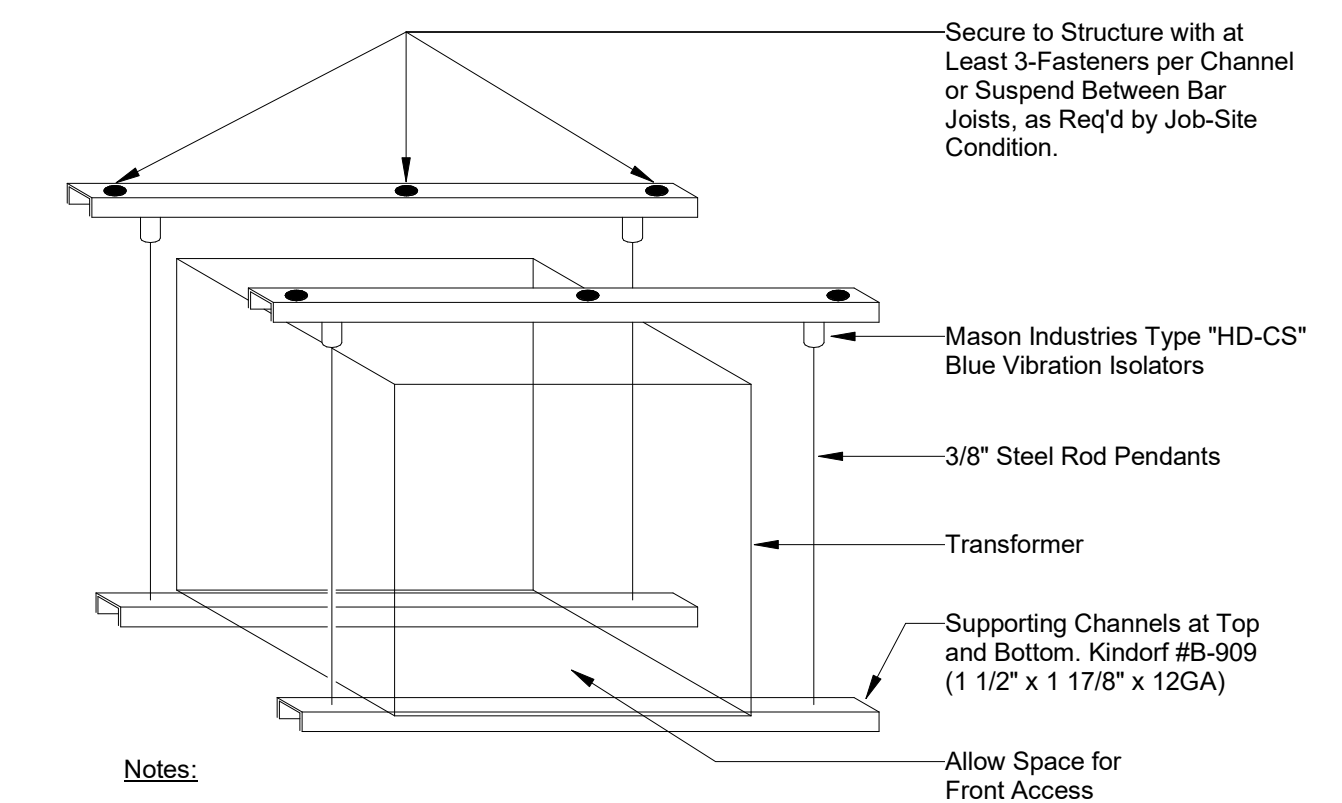
1 TYPICAL MOUNTING HEIGHTS
NOT TO SCALE



5 LIGHT POLE FOUNDATION DETAIL
NOT TO SCALE



2 DEVICE PLATE - CIRCUIT LABEL
NOT TO SCALE



Notes:

- This detail typical for transformer indicated to be suspension mounted.
- Support members must be secured at panel points of bar joist and bolted in place for steel structures.
- Support members must be secured to concrete structures w/load bearing inserts correctly placed in concrete joints.
- Contractor shall obtain approval of proposed installation(s) from architect's structural representative.
- Transformers indicated to be suspended in areas with ceilings shall be located above ceiling.
- All support material must be galvanized.
- Max load weight 1425 lbs.

3 SUSPENDED TRANSFORMER
NOT TO SCALE

REVISIONS:

08-30-22	ISSUE FOR PERMIT
A-05-02-23	IFC

LIGHTING FIXTURE SCHEDULE									
Tag	Manufacturer	Model Number	Description	Mounting	Lamp	Wattage	Voltage	Notes	
A1	G&G INDUSTRIAL LIGHTING	DMX8-RGBW	RGBW LINEAR FIXTURE, WET LISTED	SURFACE	LED	80 W	277V	3	
A2	G&G INDUSTRIAL LIGHTING	DMX8-RGBW	RGBW LINEAR FIXTURE, WET LISTED	SURFACE	LED	80 W	277V	3	
A2E	G&G INDUSTRIAL LIGHTING	DMX8-RGBW	RGBW LINEAR FIXTURE, WET LISTED, EMERGENCY	SURFACE	LED	80 W	277V	1,3	
B1	LITHONIA	2BLT4-46L-ADSM-120-EZ1-LP935	2x4' LINEAR	RECESSED	LED	38 W	120V		
B1E	LITHONIA	2BLT4-46L-ADSM-120-EZ1-LP935	2x4' LINEAR, EMERGENCY	RECESSED	LED	38 W	120V	1	
B2	LITHONIA	2BLT2-33L-ADSM-120-EZ1-LP935	2x2' LINEAR	RECESSED	LED	27 W	120V		
B3	LITHONIA	2BLT2-33L-ADSM-120-EZ1-LP935	2x2' LINEAR	SURFACE	LED	27 W	120V		
C	LITHONIA	CSVT-L48-4000LM-MVOLT-40K-80-CRI-STSL	4' LINEAR	SURFACE	LED	34 W	120V		
CE	LITHONIA	CSVT-L48-4000LM-MVOLT-40K-80-CRI-STSL	4' LINEAR, EMERGENCY	RECESSED	LED	34 W	120V	1	
D	ECOSENSE	F170-1S-MO-40K-8-S-A	FLOOD UPLIGHT, WET LISTED	WALL	LED	43 W	277V		
F	LITHONIA	CNY-LED	VACUUM BAY FIXTURE, WET LISTED	SURFACE	LED	41 W	277V		
G1	ACO	NLCP-4.540-E	TAPE LIGHT, WET LISTED	SURFACE	LED	5 W	120V	2	
P3	GARD	ECF-S-32L-700-NW-G2-AR-3-UNV-XX	EXTERIOR FIXTURE MOUNTD ON 15' POLE, WET LISTED	POLE	LED	73 W	277V		
P4	GARD	ECF-S-32L-700-NW-G2-AR-3-UNV-XX	DOUBLE-HEADED EXTERIOR FIXTURE MOUNTD ON 15' POLE, WET LISTED	POLE	LED	146 W	277V		
W1	STON	GC20-NW-G1-SM-5-8-BZ	FULL CUTOFF WALL PACK, WET LISTED	WALL	LED	10 W	120V		
W2E	CHLOR	PLEMBZ	WALL PACK, WETLISTED, EMERGENCY	WALL	LED	18 W	120V	1	
X	LITHONIA	LQC	EXIT SIGN, EMERGENCY	CEILING	LED	3 W	120V	1	

VERIFY FIXTURE SELECTION WITH ARCHITECT PRIOR TO PURCHASE. COORDINATE ALL COLORS AND FINISHES WITH ARCHITECT. PROVIDE APPROPRIATE DIMMING POWER PACKS AS NEEDED.

- NOTES:
1. EMERGENCY FIXTURE TO BE PROVIDED WITH 90 MINUTE BATTERY BACKUP.
2. WATTAGE SHOWN AS WATTS PER LENGTH.
3. G&G INDUSTRIAL LIGHTING FIXTURES TO BE PROVIDED BY OWNER.

New Distribution Panel: MDP

Bus Rating: 800 A
Bus Material: CU/SN
Wire / Conduit: 2 runs of 3-#600, 1-#1/0, 1-#1/0, 3 1/2" C
Feeder Ampacity: 840 A
Distribution System: 208Y/120 VAC, 3 ø, 4 W

800 A MLO
Neutral Rating: 100.00%
Feed-Thru Lugs: NO
Fused Branches: NO

Fed By: SERVICE
Isolated Ground Bus: NO
Location: ELEC ROOM
Mounting: CONCRETE PAD
Enclosure (NEMA): TYPE 1

CKT	LOAD DESCRIPTION	LOAD TYPE	LOAD [VA]	LOAD AMPS	FRAME	TRIP/POLES	WIRE SIZE	COND. SIZE	NOTES
1	L1 VIA 75KVA XFMR 'L1'	OL; R; ...	38661 VA	47 A	100 A	70 A/3P	3-#4, 1-#4, 1-#8	1 1/4"	
2	MCC	MT	379098 VA	456 A	600 A	500 A/3P	2 runs of 3-#250, 1-#250, 1-#2	3"	
3	CANOPY LTG	OL	387 VA	1 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
4	VACUUM BAY LTG	OL	1189 VA	4 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
5	MONUMENT SIGN LTG	MIS	1800 VA	6 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
6	TUNNEL LIGHTING	L	2400 VA	9 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
7	SITE LIGHTING	OL	876 VA	3 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
8	EW-1	MIS	4160 VA	15 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
9	EW-2	MIS	8320 VA	30 A	400 A	40 A/1P	1-#8, 1-#8, 1-#10	3/4"	
10	BUILDING SIGNS	MIS	3000 VA	11 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
11	BUILDING SIGNS	MIS	2000 VA	7 A	400 A	20 A/1P	1-#12, 1-#12, 1-#12	3/4"	
12	Space	--	--	--	--	--	--	--	
13	Space	--	--	--	--	--	--	--	
14	Space	--	--	--	--	--	--	--	
15	Space	--	--	--	--	--	--	--	
16	Space	--	--	--	--	--	--	--	
			Total Load: 444322 VA						
			Total Amp: 534 A						

- Notes:
1. Each circuit is shown as an individual homerun. Contractor may elect to combine two or three non-harmonics producing circuits in a common raceway. Contractor shall not install more than three circuits in a common conduit, except where specifically noted and allowed. Where more than three conductors are installed in a common raceway, the ampacity of all current-carrying conductors shall be derated and conductor size All wires shall have THHN/THWN insulation unless noted otherwise, increased per N.E.C. Article 310.15(B)(3)(a). Voltage drop - Use #10 wires for 20Amp 120V cks longer than 75 feet, use #10 wires for 20Amp 277V cks longer than 200 feet.
2. All breakers & fused switches 100Amp or less shall be rated for 75°/60°C wire termination. All breakers & fused switches rated for only 60°C wire termination shall not be used. All breakers & fused switches greater than 100Amp shall be rated for 75°C termination. N.E.C. Article 110.14(C)(1).
3. For 3-pole breaker or fused switch provide 3 wires + grd where neutral is not used or req'd. Similarly for 2-pole breaker or fused switch provide 2 wires + grd if neut. is not req'd.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
L Lighting	5498 VA	125.00%	6873 VA	
OL Outside Lighting	2784 VA	125.00%	3480 VA	Total Conn. Load: 444322 VA
C Cooling	0 VA	0.00%	0 VA	Total Est. Demand: 452788 VA
H Heating	6000 VA	100.00%	6000 VA	Total Conn. Current: 534 A
MT Motor	384290 VA	101.84%	391357 VA	Total Est. Demand Current: 545 A
R Receptacle	11240 VA	94.48%	10620 VA	
NC Non-Coincidental	0 VA	0.00%	0 VA	
MIS Misc Non-Continuous	34720 VA	100.00%	34720 VA	
MC Misc Continuous	0 VA	0.00%	0 VA	
K Kitchen	0 VA	0.00%	0 VA	
EX Existing	0 VA	0.00%	0 VA	

KEYED NOTES:

1. PER ARTICLE 220.12, GENERAL LIGHTING LOADS FOR AN AUTOMOTIVE FACILITY ARE 1.5 VA/SQFT. TOTAL BUILDING SOFT IS 3400. MINIMUM LIGHTING LOAD IS CALCULATED AS 5100VA. LOAD CALCULATED PER NEC 220.12 EXCEEDS ACTUAL CONNECTED LIGHTING LOAD. CONNECTED LOAD SHOWN IN LOAD ANALYSIS OF PANEL 'MDP' SHOWS THIS CALCULATED LOAD PER THE REQUIREMENTS OF ARTICLE 220.12.

New Branch Panel: L1

Bus Rating: 225 A
Bus Material: CU/SN
Wire / Conduit: 1 run of 3-#1/0, 1-#1/0, 1-#6, 1 1/2" C
Feeder Ampacity: 150 A
Distribution System: 208Y/120 VAC, 3 ø, 4 W

System: NORMAL

150 A MCB
Neutral Rating: 100%
Feed-Thru Lugs: NO

Fed By: TL1
Isolated Ground Bus: NO
Location: ELEC ROOM
Mounting: SURFACE
Enclosure (NEMA): TYPE 1

(All Branch Breakers Shall Be Bolt-On Type)

CKT	LOAD DESCRIPTION	TYPE	LOAD AMPS	WIRE SIZE	COND. SIZE	TRIP/POLE (Note 2)	A	B	C	TRIP/POLE (Note 2)	COND. SIZE	WIRE SIZE	LOAD AMPS	TYPE	LOAD DESCRIPTION	CKT		
1	LTG CONTROL PANEL	MIS	4 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	500	360			20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	R	RM 109 - 1 QR	2	
3	RM 110 - MICROWAVE	R	4 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		500	500			20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	4 A	R	RM 110 - COFFEE	4
5	RM 111 - 1 DR	R	2 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P			180	500		20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	4 A	MIS	SECURITY	6
7	RM 112 - 2 QR	R	6 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	720	900				20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	8 A	R	RM 112 - 1 DR, 2 QR	8
9	RM 113 - 1 DR	R	4 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		500	720			20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	6 A	R	RM 113 - 2 QR	10
11	RM 113 - 1 DR, 2 QR	R	6 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P			720	1080		20 A / 1P	3/4"	1-#10, 1-#10, 1-#10	9 A	R	RM 108 - 6 QR	12
13	RM 109 - 1 DR	R	2 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	180	360				20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	R	RM 113 - 2 DR	14
15	RM 111 - HAND DRYER	MT	9 A	2-#10, 1-#10, 1-#10	1/2"	30 A / 2P			900	500		20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	4 A	MIS	CONTROLLER	16
17	--	--	--	--	--	--						20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	1 A	L; MT	RESTROOM LTG & EF	18
19	INTERIOR LTG	L	2 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	299	540				20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	5 A	R	SITE - 3 DR	20
21	EQUIPMENT ROOM LTG	L	1 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		170	1800			20 A / 1P	3/4"	1-#10, 1-#10, 1-#10	15 A	MIS	TUNNEL SIGNS	22
23	TUNNEL SIGNS	MIS	15 A	1-#8, 1-#8, 1-#8	3/4"	20 A / 1P			1800	332		20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	OL	EXTERIOR BLDG LTG	24
25	CASHIER XPT	MIS	8 A	1-#8, 1-#8, 1-#8	3/4"	20 A / 1P	960	960				20 A / 1P	3/4"	1-#10, 1-#10, 1-#10	8 A	MIS	CASHIER XPT	26
27	CASHIER GATE	MIS	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		360	360			20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	MIS	CASHIER GATE	28
29	RM 107 - E-STOPS	MIS	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P			400	582		20 A / 2P	1/2"	2-#12, 1-#12, 1-#12	6 A	MT	AIR DRYER	30
31	WHEEL WASHER	MT	0 A	3-#12, 1-#12, 1-#12	3/4"	20 A / 3P	50	582				--	--	--	--	--	--	32
33	--	--	--	--	--	--		50	336			20 A / 3P	3/4"	3-#12, 1-#12, 1-#12	3 A	MT	MENU SIGNS	34
35	--	--	--	--	--	--			50	336		--	--	--	--	--	--	36
37	GRAND ENTRY ARCH	MT	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	324	336				--	--	--	--	--	--	38
39	WATER SOFTENERS	MT	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		360	360			20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	MIS	BINGO SIGN	40
41	BINGO SIGN	MIS	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P			360	360		20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	MIS	BINGO SIGN	42
43	BINGO SIGN	MIS	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	360	360				20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	3 A	MIS	BINGO SIGN	44
45	SITE - 4 DR	R	6 A	1-#10, 1-#10, 1-#10	3/4"	20 A / 1P			720	720		20 A / 1P	3/4"	1-#8, 1-#8, 1-#8	6 A	R	SITE - 4 DR	46
47	SITE - 1 DR	R	2 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P			180	3000		40 A / 2P	3/4"	2-#8, 1-#8, 1-#10	29 A	H	HP-1	48
49	EF-1	MT	1 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P	80	3000				--	--	--	--	--	--	50
51	EF-2	MT	2 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		186	1000			20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	8 A	R	RM 110 - FRIDG	52
53	RM 108 - WM, GFI CB	R	8 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P			1000	3000		30 A / 1P	3/4"	1-#8, 1-#8, 1-#8	25 A	MIS	RUG MACHINE	54
55	MENU SIGNS	MIS	8 A	1-#8, 1-#8, 1-#8	3/4"	20 A / 1P	1000	1500				20 A / 1P	3/4"	1-#12, 1-#12, 1-#12	13 A	MIS	EW-3	56
57	ROOFTOP CONV. RCPT	R	3 A	1-#12, 1-#12, 1-#12	3/4"	20 A / 1P		360	--	--		--	--	--	--	--	--	58
59	Space	--	--	--	--	--			--	--		--	--	--	--	--	--	60
			Total Load: 13358 VA				13358 VA	10394 VA	14909 VA									
			Total... 115 A					87 A										

- Notes:
1. Each circuit is shown as an individual homerun. Contractor may elect to combine two or three non-harmonics producing circuits in a common raceway. Contractor shall not install more than three circuits in a common conduit, except where specifically noted and allowed. Where more than three conductors are installed in a common raceway, the ampacity of all current-carrying conductors shall be derated and conductor size All wires shall have THHN/THWN insulation unless noted otherwise, increased per N.E.C. Article 310.15(B)(3)(a). Voltage drop - Use #10 wires for 20Amp 120V cks longer than 75 feet, use #10 wires for 20Amp 277V cks longer than 200 feet.
2. All breakers 100Amp or less shall be rated for 75°/60°C wire termination. Breakers rated for only 60°C wire termination shall not be used. All breakers greater than 100Amp shall be rated for 75°C termination. N.E.C. Article 110.14(C)(1).
3. For 3-pole breaker, provide 3 wires + grd where neutral is not used or req'd. Similarly for

MOTOR CONTROL CENTER: MCC

Mains Rating (MLO): 500 A
 Bus Rating: 600
 Bus Material: CU/SN
 Distribution System: 480Y/277 VAC, 3Φ, 4W

Wire/Conduit: 2 runs of #-#250, 1-#250, 1-#2, 3°C
 Feeder Ampacity: 510 A
 Location/Mounting: Electrical Room, Concrete Pad
 Fed By: MDP

Circuit Number	Equipment Tag	Equipment Description	Load Type	Horse Power	FLA	Poles	Voltage	Starter NEMA Size	Starter Type	Overcurrent Rating	Overload Rating	Wire Size	Conduit Size	Load
1,2,3	WT1	BLOWER #1	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
4,5,6	WT2	BLOWER #1	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
7,8,9	WT3	BLOWER #3	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
10,11,12	WT4	BLOWER #4	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
13,14,15	WT5	BLOWER #5	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
16,17,18	WT6	BLOWER #6	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
19,20,21	WT7	BLOWER #7	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
22,23,24	WT8	BLOWER #8	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
25,26,27	WT9	BLOWER #9	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
28,29,30	WT10	BLOWER #10	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
31,32,33	WT11A	TIRE GLAZE DS	MT	1	1.2 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	997 VA
34,35,36	WT11B	TIRE GLAZE PS	MT	1	1.2 A	3	480 V	0	VFD	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	997 VA
37,38,39	WT12.1A	ROCKER PANEL DS#1	MT	1	1.2 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	997 VA
40,41,42	WT12.1B	ROCKER PANEL PS#1	MT	1	1.2 A	3	480 V	0	VFD	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	997 VA
43,44,45	WT12.2A	ROCKER PANEL DS#2	MT	1	1.2 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	997 VA
46,47,48	WT12.2B	ROCKER PANEL PS#2	MT	1	1.2 A	3	480 V	0	VFD	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	997 VA
49,50,51	WT13	S-20 MITTER	MT	2	2.4 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	1995 VA
52,53,54	WT14.1A	FLEX WRAP DS#1	MT	1	1.2 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	997 VA
55,56,57	WT14.1B	FLEX WRAP PS #1	MT	1	1.2 A	3	480 V	0	VFD	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	997 VA
58,59,60	WT14.2A	FLEX WRAP DS#1	MT	1	1.2 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	997 VA
61,62,63	WT14.2B	FLEX WRAP PS #2	MT	1	1.2 A	3	480 V	0	VFD	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	997 VA
64,65,66	WT15	TOP BRUSH	MT	1	1.2 A	3	480 V	0	VFD	15 A	15 A	3-#12, 1-#12, 1-#14	3/4"	997 VA
67,68,69	WT16	DUAL PREP PUMP	MT	3	1.2 A	3	480 V	0	VFD	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	997 VA
70,71,72	WT17	POSITRACK CONVEYOR	MT	20	27.0 A	3	480 V	2	VFD	70 A	35 A	3-#8, 1-#8, 1-#10	3/4"	22447 VA
73,74,75	D	AIR COMPRESSOR #1	MT	7.5	11.0 A	3	480 V	1	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	9145 VA
76,77,78	F	AIR COMPRESSOR #2	MT	7.5	11.0 A	3	480 V	1	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	9145 VA
79,80,81	G	RO REJECT RECOVERY PUMP	MT	5	7.6 A	3	480 V	0	DS	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	6318 VA
82,83,84	K1	RO UNIT - DELIVERY PUMP	MT	2	5.1 A	3	480 V	0	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	4240 VA
85,86,87	K2	RO UNIT - 10,000 GPD	MT	3	7.6 A	3	480 V	0	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	6318 VA
88,89,90	O	SWEET WATER RECLAIM PUMP	MT	5	6.1 A	3	480 V	0	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	5071 VA
91,92,93	T1	DSI - PUMP #1	MT	3	7.6 A	3	480 V	0	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	6318 VA
94,95,96	T2	DSI - PUMP #2	MT	3	7.6 A	3	480 V	0	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	6318 VA
97,98,99	T3	DSI - PUMP #2	MT	3	7.6 A	3	480 V	0	MMP	20 A	20 A	3-#12, 1-#12, 1-#12	3/4"	6318 VA
100,101,102	Z1	HIGH PRESSURE PUMP #1	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
103,104,105	Z2	HIGH PRESSURE PUMP #2	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
106,107,108	Z3	HIGH PRESSURE PUMP #3	MT	15	21.0 A	3	480 V	2	DS	60 A	30 A	3-#10, 1-#10, 1-#10	3/4"	17459 VA
109,110,111	V1	VACUUM #1	MT	25	34.0 A	3	480 V	2	VFD	90 A	45 A	3-#6, 1-#6, 1-#10	3/4"	28267 VA
112,113,114	V2	VACUUM #2	MT	25	34.0 A	3	480 V	2	VFD	90 A	45 A	3-#6, 1-#6, 1-#10	3/4"	28267 VA

- Notes:
 1. Contractor to confirm HP ratings and Starter NEMA size with equipment vendor prior to bid. Confirm starter type requirements with final equipment selection and notify electrical engineer of any changes.
 2. Contractor to confirm overcurrent protection device requirements with equipment vendor and provide appropriate circuit breaker or fused disconnect switch as required. All breakers and switches shall be rated for 75°C wire termination.
 3. Contractor to confirm neutral wire requirements of each equipment with equipment vendor and provide as shown if required.
 4. Starter Abbreviations: DS = Direct Start; MMP = Manual Motor; VFD = Variable Frequency Drive. Coordinate location of VFD type starters with tunnel equipment vendor and owner.
 5. Per NEC 430.32(A), Bolded Equipment (Equipment with >= 15 HP) shall be provided with distinct overload protection separate from overcurrent protection shown in schedule above. Overload protection shall be rated at 125% of the motor nameplate unless provided with protection integral to the motor.
 Contractor to confirm that overload protection is provided either integral to the motor, via a fused disconnect called out on the site plan or equipment plan, or in a separate bucket in the MCC.
 6. Per NEC 430.55, Non-Bolded Equipment (Equipment with < 15 HP) shall be provided with overcurrent protection and overload protection in a single protective device rated per 430.32.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
MT	37908 VA	101.86%	386165 VA	
				Total Conn. Load: 37908 VA
				Total Est. Demand: 386165 VA
				Total Conn. Current: 456 A
				Total Est. Demand Current: 464 A

REVISIONS:
 05-09-22 ISSUE FOR PERMIT
 A 05-09-28 IFC

APPLICABLE CODES AND STANDARDS

ALL MECHANICAL EQUIPMENT, MATERIALS, INSTALLATION, TESTING, CLEANING, SUPPORTS, AND WORKMANSHIP SHALL BE IN STRICT ACCORDANCE WITH THE BELOW LISTED APPLICABLE CODES INCLUDE BUT ARE NOT LIMITED TO:

CODE INFORMATION

2015 INTERNATIONAL BUILDING CODE (W/ CITY OF SAN MARCOS AMENDMENTS)
 2015 INTERNATIONAL MECHANICAL CODE (W/ CITY OF SAN MARCOS AMENDMENTS)
 2015 INTERNATIONAL FIRE CODE (W/ CITY OF SAN MARCOS AMENDMENTS)
 2015 INTERNATIONAL ENERGY CONSERVATION CODE (W/ CITY OF SAN MARCOS AMENDMENTS)

HVAC DESIGN CRITERIA

INDOOR TEMPERATURE
 75° F COOLING (MINIMUM ALLOWED BY 2015 IECC, SECTION C302.1)
 72° F HEATING (MAXIMUM ALLOWED BY 2015 IECC, SECTION C302.1)

HUMIDITY CONTROL: THIS PROJECT HAS NO DIRECT CONTROL OF HUMIDITY

OUTDOOR DESIGN CONDITIONS (SAN MARCOS, TEXAS) PER 2015 IECC SAN MARCOS AMENDMENTS, TABLE C302.2:

- 96°F DB, 80.5°F WB SUMMER; 28°F DB WINTER
- 7357 DEGREE DAYS COOLING; 1371 DEGREE DAYS HEATING
- CLIMATE ZONE 2A

OUTSIDE AIR REQUIREMENTS: PER ASHRAE 62.1-2013

OFFICE CONFERENCE ROOMS: 5 CFM PER PERSON, 0.06 CFM PER SQ.FT.
 OFFICE SPACES: 5 CFM PER PERSON, 0.06 CFM PER SQ.FT.
 BREAKROOMS: 5 CFM PER PERSON, 0.12 CFM PER SQ.FT.

MECHANICAL SHEET LIST	
SHEET NUMBER	SHEET NAME
M-001	MECHANICAL LEGENDS AND NOTES
M-002	MECHANICAL SPECIFICATIONS
M-003	MECHANICAL SPECIFICATIONS
M-201	MECHANICAL PLAN
M-510	MECHANICAL DETAILS
M-511	MECHANICAL DETAILS

MECHANICAL ABBREVIATIONS

A	AMPS
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
BTU	BRITISH THERMAL UNIT
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CLEAN OUT
COND	CONDENSATE DRAIN
CP	CONDENSATE PUMP
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CT	COOLING TOWER
CU	CONDENSING UNIT
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB TEMPERATURE, °F
DN	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAD	EXHAUST AIR DUCT
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWT	ENTER WATER TEMPERATURE, °F
FA	FREE AREA
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTU	FAN POWERED TERMINAL UNIT
FSD	FIRE SMOKE DAMPER
GUH	GAS UNIT HEATER
GPM	GALLONS PER MINUTE
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HP	HORSEPOWER
HK	HEAT EXCHANGER
HZ	HERTZ
IN. WG	INCHES OF WATER COLUMN
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE, °F
LP	LIQUID PROPANE
LV	LOUVER
LWT	LEAVING WATER TEMPERATURE, °F
MAU	MAKE-UP AIR
MBH	THOUSAND BTU PER HOUR
MOCP	MAXIMUM OVERCURRENT PROTECTION
N.C.	NORMALLY CLOSED
N.I.C.	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NG	NATURAL GAS
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DUCT
OED	OPEN END DUCT
OAHU	OUTSIDE AIR HANDLING UNIT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RAD	RETURN AIR DUCT
RCP	REFLECTED CEILING PLAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
RX	REMOVE EXISTING
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SD	SUPPLY DIFFUSER
SR	SUPPLY REGISTER
TYP	TYPICAL
UV	UNIT VENTILATOR
V	VOLTS
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE-FREQUENCY DRIVE
VRV	VARIABLE REFRIGERANT VOLUME
WI	WITH
WB	WET BULB TEMPERATURE, °F
WPD	WATER PRESSURE DROP
°F	DEGREES FAHRENHEIT
φ	PHASE

MECHANICAL LEGEND

	MECHANICAL EQUIPMENT
	PLENUM SLOT DIFFUSER
	SUPPLY AIR DEVICE
	RETURN AIR DEVICE
	EXHAUST AIR DEVICE
	CONCIAL TAP WITH DAMPER
	MOTORIZED DAMPER
	MANUAL BALANCING DAMPER
	RIGID DUCTWORK
	FLEX DUCT
	ZONE THERMOSTAT @ 48° A.F.F.
	ZONE TEMPERATURE SENSOR
	DIFFUSER TAG / AIR FLOW
	EQUIPMENT TAG
	KEY NOTE TAG
	POINT OF CONNECTION
	POINT OF DEMOLITION

MECHANICAL GENERAL NOTES

- DRAWINGS ARE DIAGRAMMATIC; CONFIRM DIMENSIONS AND LOCATIONS IN THE FIELD.
- RUNOUTS TO INDIVIDUAL AIR DEVICES ARE SAME SIZE AS AIR DEVICE NECK UNLESS OTHERWISE NOTED.
- DUCT SIZES SHOWN ARE FREE AREA.
- SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR TYPE OF CEILING AND LOCATION OF CEILING DEVICES.
- SEE ARCH ELEVATIONS FOR LOCATION OF WALL MTD DEVICES.
- PLENUMS ARE CROWDED AND NOT ALL OBSTACLES ARE INDICATED. ALLOW FOR ADDITIONAL DUCT OR PIPE OFFSETS OR TRANSITIONS NOT INDICATED ON DRAWINGS.
- SEAL ALL PENETRATIONS OF FLOORS, RATED WALLS, EXTERIOR WALLS
- CONTRACTOR SHALL SUBMIT DRAWINGS FOR ALL PERMITS IN A TIMELY MANNER AND PAY ALL PERMIT FEES.
- PROVIDE ANY REQUIRED TEMPORARY UTILITIES.
- THE LISTING OF PRODUCT MANUFACTURERS, MATERIALS, AND METHODS ARE THE BASIS OF DESIGN AND ARE INTENDED TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER SHALL BE THE SOLE JUDGE OF QUALITY AND EQUIVALENCE OF EQUIPMENT, MATERIALS, AND METHODS, WHERE SUBSTITUTED OR ALTERNATIVE EQUIPMENT IS PROPOSED ON THE PROJECT BEFORE BIDDING, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE EQUIPMENT WILL FIT THE SPACE AVAILABLE, INCLUDING ALL REQUIRED CODE AND MAINTENANCE CLEARANCES, AND TO COORDINATE ALL EQUIPMENT REQUIREMENTS WITH OTHER CONTRACTORS.
- PROVIDE BID BREAKDOWN TO ALLOW FOR SELECTION OF EQUIPMENT FROM MULTIPLE MANUFACTURERS, MANUFACTURER'S REPRESENTATIVES AND/OR DISTRIBUTORS, BEING LISTED AS THE ONLY ACCEPTABLE MANUFACTURER FOR ONE LINE OF EQUIPMENT DOES NOT AUTOMATICALLY EXTEND TO ALL EQUIPMENT. BREAK BIDS ALONG RESPECTIVE SPECIFICATION SECTIONS.
- INSTALL ALL EQUIPMENT TO PROVIDE CLEARANCE AROUND ALL HVAC EQUIPMENT CONFORMING TO MANUFACTURER'S MINIMUM RECOMMENDED SPACE FOR MAINTENANCE AND/OR AIR FLOW AND SUFFICIENT TO ALLOW INSPECTION, SERVICE, REPAIR, OR REPLACEMENT WITHOUT REMOVING ELEMENTS OF PERMANENT CONSTRUCTION OR DISABLING THE FUNCTION OF FIRE RESISTANCE RATED ASSEMBLIES.
- DO NOT RUN DUCT OR PIPE ABOVE ELECTRICAL PANELS.
- ALL WORK IN OR ABOVE OCCUPIED AREAS SHALL BE AT OWNER'S CONVENIENCE AND MAY BE DURING EVENINGS OR WEEKENDS. SCHEDULE ALL SERVICE INTERRUPTIONS IN ADVANCE WITH OWNER.
- ONLY OWNER'S REPRESENTATIVE MAY SHUT OFF EQUIPMENT OR DISCONNECT UTILITIES.
- BEFORE SUBMITTING A BID, IT WILL BE NECESSARY FOR EACH CONTRACTOR WHOSE WORK IS INVOLVED TO VISIT THE SITE AND ASCERTAIN FOR HIMSELF THE CONDITIONS TO BE MET IN INSTALLING THE WORK AND MAKE PROVISIONS FOR THE CONDITIONS IN HIS FINAL PRICE. FAILURE OF THE CONTRACTOR TO COMPLY WITH THIS REQUIREMENT SHALL NOT BE CONSIDERED JUSTIFICATION FOR THE OMISSION OR FAULTY INSTALLATION OF ANY WORK COVERED BY THE CONTRACT DOCUMENTS. THE BID SHALL INCLUDE ALL THE WORK REQUIRED OR NECESSARY TO COMPLY WITH THE WORK SHOWN ON THE DRAWINGS AND IDENTIFIED IN THE SPECIFICATIONS. NO EXTRAS WILL BE ALLOWED FOR CONDITIONS THAT COULD BE READILY OBSERVED.
- REMOVE ALL UNUSED EXISTING DUCTWORK. CAP EXISTING TAPS OF DUCT MAINS WITH SHEET METAL CAPS AND SEAL AIRTIGHT.
- REMOVE ALL EXISTING DEVICES AND EQUIPMENT THAT ARE NOT TO BE REUSED.
- CONTRACTOR SHALL PROPERLY SEAL AND CAP ALL UNUSED DUCT TAPS AND NEW DUCTWORK. CONTRACTOR SHALL REPLACE ALL DAMAGED EXISTING FLEX DUCT AS REQUIRED.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH THE BUILDING ENGINEER.
- ALL OTHER AREAS OF THE FLOOR NOT WITHIN THE SCOPE OF WORK SHALL REMAIN UNCHANGED.
- REPAIR ALL EXISTING DUCTWORK LEAKS AND DAMAGED INSULATION AS REQUIRED.
- EXISTING DUCTWORK WAS TAKEN FROM AS-BUILT DRAWINGS AND FIELD INVESTIGATION. CONTRACTOR SHALL FIELD VERIFY EXACT DUCTWORK CONDITIONS.
- BUILDING IS A CONCRETE STRUCTURE WITH THE 2-HOUR RATING AT THE CONCRETE SLAB. CEILING IS NOT PART OF THE RATED ASSEMBLY. CEILING RADIATION FIRE DAMPERS ARE NOT REQUIRED.
- AIR IS RETURNED TO THE RTU VIA DUCTED RETURN AND RETURN AIR TRANSFER DUCTS. CONTRACTOR SHALL VERIFY THAT SUFFICIENT RETURN AIR OPENINGS ARE PROVIDED.
- COORDINATE FINAL LOCATIONS AND LABELING REQUIREMENT OF THERMOSTATS WITH ARCHITECT AND BUILDING ENGINEER.
- LOCATE VOLUME DAMPERS ABOVE ACCESSIBLE CEILING. EVEN IN AREAS OF ACCESSIBLE CEILINGS, POSITION DAMPER HANDLE/OPERATOR ON BOTTOM SIDE OF DUCT OR ON CLEAR SIDE OF DUCT FOR EASE OF ADJUSTMENT.
- CONTRACTOR SHALL MAINTAIN MANUFACTURER CLEARANCES FOR ALL MECHANICAL EQUIPMENT AND ENSURE ALL SERVICEABLE COMPONENTS ARE READILY ACCESSIBLE, EVEN IN LAY-IN CEILING AREAS.
- CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO ENSURE THAT ALL NEW PLASTIC PIPING IN RETURN AIR PLENUMS AND EXPOSED AREAS ARE INSULATED (MORGAN PLENUMWRAP+ OR EQUAL) TO MEET CODE FLAME AND SMOKE REQUIREMENTS.
- NOTE TO PLAN CHECKER: BUILDING IS EXISTING AND RENOVATED SPACE IS CONDITIONED. BUILDING ENVELOPE CALCULATIONS ARE NOT REQUIRED.

SUDS DELUXE CAR WASH

PM: DW DE: SB

PROJECT:

792208473

SHEET:

M-001
 MECHANICAL
 LEGENDS AND
 NOTES

REVISIONS:

08-08-22	ISSUE FOR PERMIT
A-05-05-23	IFC

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SECTION C403 BUILDING MECHANICAL SYSTEMS

C403.1.1 Calculation of heating and cooling loads.

Engineer has performed HVAC load calculations using Trace 700

C403.2.2 Ventilation.

Natural or Mechanical ventilation in accordance with governing code or if none is present – IMC Chapter 4. Mechanical ventilation system shall be capable of turning down to a minimum code prescribed volumetric flow rate (CFM).

C403.3.1 Equipment sizing.

Equipment shall not be sized larger than the load calculation output. If heating or cooling dominate in a climate, the lesser of the two shall be sized as small as possible with available equipment options.

- Exceptions:**
- Redundant standby equipment and systems with proper controls to avoid simulations operation with primary equipment.
 - Lead/lag equipment with a summed capacity greater than the load generated in C403.2.1 shall be provided with proper controls to stage equipment.

C403.3.2 HVAC Equipment performance and requirements.

Scheduled equipment shall at a minimum meet the minimum efficacy requirements published in applicable table(s).

C403.4 Heating and cooling system controls.

Each heating and cooling system shall be provided with thermostatic controls.

C403.4.1 Thermostatic controls.

At least one temperature sensor shall be provided for each zone.

At least one humidity sensor shall be provided for each humidity control device (dehumidification or humidification).

- Exceptions:**
- Independent perimeter heating/cooling systems designed for one or more zones given that all the following are met:
 - At least one temperature sensor for each zone. Each building orientation (within 45°) shall have a zone and shall not exceed 50 continuous feet.
 - Temperature sensor shall be located with served zone.

C403.4.1.2 Deadband.

Zone(s) with heating and cooling thermostatic controls shall be provided with a deadband of 5°F or greater. Within this deadband, cooling/heating shall be shutoff or turned down to a minimum.

Exceptions:

- Thermostats requiring manual changeover between heating and cooling modes.
- Occupancies or applications requiring precision in indoor temperature control as approved by the code official.

C403.4.1.3 Set point overlap restriction.

When a zone has separate heating and cooling controls, a limit switch, mechanical stop, or DDC logic shall prevent simultaneous heating and cooling and maintain a deadband as described in the previous section.

C403.4.2 Off-hour controls.

Each zone shall be provided with thermostatic setback controls that are controlled by either an automatic time clock or programmable control system.

Exceptions:

- Zones that will be operated continuously
- Zones with a full HVAC load demand not exceeding 6,800 Btu/h and having a readily accessible manual shutoff switch

C403.4.2.1 Thermostatic setback.

Thermostatic setback controls shall have the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F or up to 85°F.

C403.4.2.2 Automatic setback and shutdown.

Seven-day operational programming shall be provided via automatic time clock or programmable controls. System should be able to recover operation schedule after the power has been lost for a minimum of 10 hrs. Systems shall also have temporary manual override for up to 2 hours via manual switch, manual timer, or occupancy sensor.

C403.4.2.3 Automatic start and stop.

HVAC system shall have the ability of automatic start with logic to optimize the start time to bring the occupied zones to setpoint immediately before being occupied.

C403.7.7 Shutoff dampers.

Outdoor air intake, exhaust openings, and stairway and shaft vents shall be provided with Class I motorized dampers. The dampers shall have an air leakage rate of less than 4 cfm/ft² of damper surface area at 1.0-inch water gauge. Dampers shall also be labeled by an approved agency when tested in accordance with AMCA 500D for such purpose.

Automatic controls shall close outdoor intake and exhaust dampers during unoccupied warm up, unoccupied setback, and unused time periods. The dampers shall be open for the previous scenarios if the IMC dictates or if economizer cooling is intended.

Automatic controls shall open stairway and shaft vent dampers when called upon by the fire alarm system or if the power is interrupted.

Exceptions:

- Gravity (nonmotorized) dampers shall be permitted to be used as follows:
- In buildings less than three stories in height above grade plane.
 - In buildings of any height located in Climate Zones 1, 2 or 3.
 - Where the design exhaust capacity is not greater than 300 cfm.

Gravity (nonmotorized) dampers shall have an air leakage rate of 20 cfm/ft² or less if the damper is less than 24 inches in either dimension. If damper is greater than 24 inches in either dimension, then the damper shall have an air leakage rate of 40 cfm/ft² or less. The previously stated air leakage rates shall be determined at 1.0-inch water gauge when tested in accordance with AMCA 500D. The dampers shall be labeled by an approved agency.

C403.12.1 Duct and plenum insulation and sealing.

If supply and return air ducts and plenums are located in an unconditioned space, then ductwork shall be insulated with a minimum of R-6 insulation. If supply and return air ducts and plenums are located outside the building envelope, then ductwork shall be insulated with a minimum of R-8 (Climate Zone 1-4) or R-12 (Climate Zone 5-8) insulation.

Exceptions:

- Where located within equipment.
- Where the design temperature difference between the interior and exterior of the duct or plenum is not greater than 15°F.

Ducts, air handlers, and filter boxes shall be sealed.

C403.12.2 Duct construction.

Ductwork shall be constructed and erected in accordance with the International Mechanical Code.

C403.11.2.1 Low-pressure duct systems.

Longitudinal (parallel to airflow) and transverse (perpendicular to airflow) joints, seams and connections of supply and return ducts operating at 2 inches w.g. static or less, shall be securely fastened and sealed with gaskets, mastic (adhesives), mastic-plus-embedded-fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the International Mechanical Code.

Exception: Locking-type longitudinal joints and seams, other than the snap-lock and button-lock types, need not be sealed as specified in this section

403.12.3 Piping insulation.

Piping serving as part of a heating or cooling system shall be thermally insulated in accordance with Table C403.11.3.

Exceptions:

- Factory-installed piping within HVAC equipment tested and rated in accordance with a test procedure referenced by this code.
- Factory-installed piping within room fan-coils and unit ventilators tested and rated according to AHRI 440 (except that the sampling and variation provisions of Section 6.5 shall not apply) and AHRI 840, respectively.
- Piping that conveys fluids that have a design operating temperature range between 60°F and 105°F.
- Piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
- Strainers, control valves, and balancing valves associated with piping 1 inch or less in diameter.
- Direct buried piping that conveys fluids at or below 60°F.

C403.12.3.1 Protection of piping insulation.

Piping insulation exposed to the elements shall be protected from damage such as but not limited to sunlight, moisture, equipment maintenance, wind, and solar radiation degradation. Use of adhesive tape for this section shall not be permitted.

SECTION C408 MAINTENANCE INFORMATION & SYSTEM COMMISSIONING

C408.2.2 Systems adjusting and balancing.

HVAC systems shall be balanced in accordance with generally accepted engineering standards. Air and water flow rates shall be measured and adjusted to deliver final flow rates within the tolerances provided in the product specifications. Test and balance activities shall include air system and hydronic system balancing.

C408.2.2.1 Air systems balancing.

Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the International Mechanical Code. Discharge dampers used for air-system balancing are prohibited on constant-volume fans and variable-volume fans with motors 10 hp and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp, fan speed shall be adjusted to meet design flow conditions.

Exception: Fans with fan motors of 1 hp or less are not required to be provided with a means for air balancing.

C408.2.3.1 Equipment.

Equipment functional performance testing shall demonstrate the installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications such that operation, function, and maintenance serviceability for each of the commissioned systems is confirmed. Testing shall include all modes and sequence of operation, including under full-load, part-load, and the following emergency conditions:

- All modes as described in the sequence of operation.
- Redundant or automatic back-up mode.
- Performance of alarms.
- Mode of operation upon a loss of power and restoration of power.

Exception: Unitary or packaged HVAC equipment listed in Tables C403.2.3(1) through C403.2.3(3) that do not require supply air economizers.

C408.2.3.2 Controls.

HVAC and service water-heating control systems shall be tested to document that control devices, components, equipment, and systems are calibrated and adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with approved plans and specifications.

C408.2.4.1 Acceptance of report.

Buildings, or portions thereof, shall not be considered as acceptable for a final inspection pursuant to Section C105.2.6 until the code official has received the Preliminary Commissioning Report from the building owner or owner's authorized agent.

C408.2.4.2 Copy of report.

The code official shall be permitted to require that a copy of the Preliminary Commissioning Report be made available for review by the code official.

C408.2.5 Documentation requirements.

The construction documents shall specify that the documents described in this section be provided to the building owner or owner's authorized agent within 90 days of the date of receipt of the certificate of occupancy.

C408.2.5.1 System balancing report.

A written report detailing the completed activities and measurement conducted in accordance with Section C408.2.2.

C408.3.2 Documentation requirements.

The construction documents shall specify that the documents described in this section are provided to the building owner or representative within 90 days from the date of receipt of the certificate of occupancy.

C408.3.2.1 Drawings.

Construction documents shall include the location and catalogue number on each piece of equipment.

C408.3.2.2 Manuals.

An operating and maintenance manual shall be provided and include all of the following:

- At least one service company with name and address to service installed equipment
- A narrative of equipment operation and recommended setpoints
- Submittal data indicating all selected options for each lighting device.
- Operation and maintenance manuals for each piece of lighting equipment. Manuals shall have clear identifiable sections for recommended maintenance actions, cleaning, and recommended relamping.
- A schedule for inspecting and recalibrating all lighting controls.

C408.3.2.3 Report.

- A test result report shall be provided with the following:
- Functional performance test(s) results.
 - Deficiencies found during testing along with their respective or recommended fix.

HVAC GENERAL NOTES (APPLY TO ALL SHEETS)

- DRAWINGS ARE DIAGRAMMATIC, CONFIRM DIMENSIONS AND LOCATIONS IN THE FIELD.
- ROUTINGS TO INDIVIDUAL AIR DEVICES ARE SAME SIZE AS AIR DEVICE NECK UNLESS OTHERWISE NOTED.
- DUCT SIZES SHOWN ARE FREE AREA.
- SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR TYPE OF CEILING AND LOCATION OF CEILING DEVICES.
- SEE ARCH ELEVATIONS FOR LOCATION OF WALL MTD DEVICES.
- PLENUMS ARE CROWDED AND NOT ALL OBSTACLES ARE INDICATED. ALLOW FOR ADDITIONAL DUCT OR PIPE OFFSETS OR PENETRATIONS NOT INDICATED ON DRAWINGS.
- SEAL ALL PENETRATIONS OF FLOORS, RATED WALLS, EXTERIOR WALLS.
- CONTRACTOR SHALL SUBMIT DRAWINGS FOR ALL PERMITS IN A TIMELY MANNER AND PAY ALL PERMIT FEES.
- PROVIDE ANY REQUIRED TEMPORARY UTILITIES.
- THE LISTING OF PRODUCT MANUFACTURERS, MATERIALS AND METHODS ARE THE BASIS OF DESIGN AND ARE INTENDED TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER SHALL BE THE SOLE JUDGE OF QUALITY AND EQUIVALENCE OF EQUIPMENT, MATERIALS AND METHODS, WHERE SUBSTITUTED OR ALTERNATIVE EQUIPMENT IS PROPOSED ON THE PROJECT BEFORE BIDDING, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE EQUIPMENT WILL FIT THE SPACE AVAILABLE, INCLUDING ALL REQUIRED CODE AND MAINTENANCE CLEARANCES, AND TO COORDINATE ALL EQUIPMENT REQUIREMENTS WITH OTHER CONTRACTORS.
- PROVIDE BID BREAKDOWN TO ALLOW FOR SELECTION OF EQUIPMENT FROM MULTIPLE MANUFACTURERS, MANUFACTURER'S REPRESENTATIVES AND/OR DISTRIBUTORS. BEING LISTED AS THE ONLY ACCEPTABLE MANUFACTURER FOR ONE LINE OF EQUIPMENT DOES NOT AUTOMATICALLY EXTEND TO ALL EQUIPMENT. BREAK BIDS ALONG RESPECTIVE SPECIFICATION SECTIONS.
- INSTALL ALL EQUIPMENT TO PROVIDE CLEARANCE AROUND ALL HVAC EQUIPMENT CONFORMING TO MANUFACTURER'S MINIMUM RECOMMENDED SPACE FOR MAINTENANCE AND/ OR AIR FLOW AND SUFFICIENT TO ALLOW INSPECTION, SERVICE, REPAIR OR REPLACEMENT WITHOUT REMOVING ELEMENTS OF PERMANENT CONSTRUCTION OR DISABLING THE FUNCTION OF FIRE RESISTANCE RATED ASSEMBLIES.
- DO NOT RUN DUCT OR PIPE ABOVE ELECTRICAL PANELS.
- ALL WORK IN OR ABOVE OCCUPIED AREAS SHALL BE AT OWNERS CONVENIENCE AND MAY BE DURING EVENINGS OR WEEKENDS. SCHEDULE ALL SERVICE INTERRUPTIONS IN ADVANCE WITH OWNER.
- ONLY OWNER'S REPRESENTATIVE MAY SHUT OFF EQUIPMENT OR DISCONNECT UTILITIES.
- BEFORE SUBMITTING A BID, IT WILL BE NECESSARY FOR EACH CONTRACTOR WHOSE WORK IS INVOLVED TO VISIT THE SITE AND ASCERTAIN FOR HIMSELF THE CONDITIONS TO BE MET IN INSTALLING THE WORK AND MAKE PROVISIONS FOR THE CONDITIONS IN HIS FINAL PRICE. FAILURE OF THE CONTRACTOR TO COMPLY WITH THIS REQUIREMENT SHALL NOT BE CONSIDERED JUSTIFICATION FOR THE OMISSION OR FAULTY INSTALLATION OF ANY WORK COVERED BY THE CONTRACT DOCUMENTS. THE BID SHALL INCLUDE ALL THE WORK REQUIRED OR NECESSARY TO COMPLY WITH THE WORK SHOWN ON THE DRAWINGS AND IDENTIFIED IN THE SPECIFICATIONS. NO EXTRAS WILL BE ALLOWED FOR CONDITIONS THAT COULD BE READILY OBSERVED.

HVAC SPECIFICATIONS

23 05 00 BASIC MECHANICAL REQUIREMENTS

Warranty: Guarantees labor and materials for 1-year. Warranties begin upon Owner's acceptance of substantial completion of the installation.

Shop drawings: Submit complete information on all equipment, air devices, valves, duct accessories and controls. Submit complete ductwork and piping shop drawings, based on approved equipment and field observation of building conditions. Submit detailed layout of mechanical rooms and yards. Incomplete submittals will be returned to the contractor un-reviewed. No time extensions or cost increases will be allowed for delays caused by return of incomplete submittals.

Operations and maintenance instructions: Provide 3 copies of operation and maintenance manuals to Owner. Provide within 90 days after the date of system acceptance. These manuals shall be in accordance with industry-accepted standard such as ASHRAE Guideline 1 and shall include, at a minimum, the following:

- Submit data stating equipment size and selected options for each piece of equipment requiring maintenance.
- Operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.
- Names and addresses of at least one service agency.
- HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in programming comments.
- A complete narrative of how each system is intended to operate, including suggested setpoints.

Record drawings: Within 90 days after the date of system acceptance, provide record drawings in Revit Format (using the same software version the project was designed in), plus full-size hard copy. Revit models may be available from Engineer for a fee. Record drawings shall include as a minimum the installed location and performance data on each piece of equipment, air devices, control sensors, control panels, general configuration of duct and pipe distribution system including sizes, and the terminal air or water design flow rates.

Coordination: Provide Electrical Contractor with electrical requirements of approved equipment in sufficient time to order panel boards, disconnects, etc.

Access doors: Provide Mitcor or equal as required for access to all valves, filters, controls, dampers, or other devices requiring attention. Doors shall match wall or ceiling rating. Architect must approve location and appearance of all access doors. Access panels for fire or smoke dampers shall be operable without the use of tools.

Sleeves: Provide metal sleeves where pipes or control wiring penetrate walls.

Overflow drain pans: Provide under all furred in units. Pans to be minimum 24-gauge galvanized sheet steel; minimum 1-1/2" deep and not less than 3" larger than unit or coil dimensions. Provide separate 3/4" drain from pan to conspicuous location; provide escutcheon plates at ceiling penetrations. When allowed by local authority, contractor may provide a float switch in the overflow pan, instead of discharge piping. Float switch shall shut unit off if standing water is detected in the overflow drain pan. Pans equipped with float switch shall have screw cap nipple on bottom or side of pan to allow water to be drained from pan.

Trenching Requirements: Refer to Subchapter C of Chapter 756 of the Texas Health and Safety Code for requirements applicable to trench safety. It is the responsibility of the Contractor to assure compliance with applicable state and federal laws, and no provision of these drawings or specifications shall be deemed to excuse compliance with applicable state and federal requirements for trench safety.

23 05 17 SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

Sleeves: Cast-iron or steel pipe with anti-corrosion coating sleeve. Plain ends and integral welded waterstop collar.

Sleeve Seal Systems: Unit comprised of modular interlocking sealing elements designed to fill field gaps between piping and sleeve and form a minimum static seal of 20 psig. Modular sealing elements shall be EPDM rubber with composite plastic pressure plates and stainless-steel bolts. Type and number of modular elements shall be suitable for application. Metraflex MetraSeal or equal.

Sleeve Seal Fittings: Sleeve constructed of manufactured plastic with integral waterstop assembly intended for concrete wall or slab embedment. Collar shall be plastic or rubber with center opening to match pipe outer diameter. Use silicone sealant to seal spaces around outside of fitting. Metraflex Wall Penetration Sleeve or equal.

23 05 29 HANGERS AND SUPPORTS FOR HVAC PIPING & EQUIPMENT

Pipe, duct, and equipment hangers and supports shall be per the local code. Support piping at a minimum every 10' or less for 1" and larger pipe, every 6' on 3/4" or smaller. With copper pipe use copper hangers or tape at contact point. If pipe is insulated, support shall be on exterior of insulation. Provide shield to prevent acute compression of insulation.

Support flex ducts per manufacturer's installation instructions (provide instructions for inspector review). Alternate acceptable flex duct support is 26 gage, 1.5-inch-wide galvanized iron straps on 4-foot maximum spacing.

23 05 53 IDENTIFICATION FOR HVAC PIPING & EQUIPMENT

Equipment: Permanent label (stencil, metal tag or engraved plastic) with unit tag or name and area or space served.

- Ceiling tacks: Provide ceiling tacks to locate valves or dampers above T-bar type panel ceilings. Locate in corner of panel closest to equipment. Color code: equipment: Yellow. Fire dampers/smoke dampers: Red. Valves: Blue.

23 05 93 TESTING, ADJUSTING AND BALANCING (TAB) FOR HVAC

Balance may be by a qualified employee of the mechanical contractor. Technician shall be AABC, NEBB, or TABB certified.

Balance in accordance with NEBB Procedural Standards –1999 Procedural Standards for Building Systems, or AABC 2002 Associated Air Balance Council Test and Balance Procedures.

Adjust system to achieve air quantities shown, then adjust volumes to provide constant temperature (±2 °F) throughout the zone. Adjust fan sheaves, when applicable and where available. Calibrate all thermostats. Mark setpoints on all dampers and valves. Return to project at 1- and 3-month intervals after completion to make balance adjustments in response to Owner's perceived comfort.

Submit report (NEBB or AABC format) and include –

- Fans: Volume and static pressure; fan rpm and amps
- DX packaged units: Supply and ret air temp (DB & WB), volume and static pressure; indoor fan rpm and amps; condensing air temp, unit's amps. Outside air cfm.

Air systems shall be balanced to meet air quantities shown at each air device; and, in a manner to first minimize throttling losses in the effected system. Then, for fans with fan system power greater than 1 HP, fan speed shall be adjusted to meet design flow conditions.

Tolerances

- Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent
- Air Outlets and Inlets: Plus or minus 10 percent

HVAC control systems shall be tested to ensure that control elements are calibrated, adjusted, and in proper working condition. Submit test documentation.

Perform inspections in the presence of construction manager or commissioning authority. Owner, construction manager, or commissioning authority may randomly select measurements, documented in the final report, to be rechecked within 90 days. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day. Recheck and adjust for failed measurements.

23 07 13 DUCT INSULATION

Flame spread less than 25, smoke developed less than 50 as per ASTM E84, NFPA 255, UL273. Minimum required installed R values for non-residential projects (excluding fire resistance) are:

- In all climate zones: Supply R-6; Return R-6; Exhaust or relief: R-6; Conditioned outside air R-6
- Within the conditioned space:
- In all climate zones: Supply R-6; Return -none required; Exhaust or relief: none required; Conditioned outside air R-6

External duct wrap: foil face rigid or flexible fiberglass with vapor retarder. R value stenciled on outside. ASTM A96 Water Vapor Permeance: 0.5 perms maximum. Mold Growth per ASTM C1338- No Growth. GREENGUARD Environmental Institute Certified. Vapor Retarder Jacket conforming to ASTM C 1136 Type II, Foil Scrim Kraft (FSK), or White polypropylene- scrim-kraft (PSK). 2" Staple flange on longitudinal seam. Adhere to duct with vapor barrier type adhesive. Overlap all joints. Vapor seal all joints or breaks with reinforcing mesh imbedded in vapor barrier coating.

Insulate backs of supply diffusers when in attics or when ceiling plenum is not used for return air.

Internal liners- see section 23 31 00.

23 07 19 HVAC PIPING INSULATION

Pipe insulations, mastics and jackets located in environmental air plenums shall have maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84.

Primary condensate drains

Inside buildings: 3/4" Armaflex (or equal) with ASTM E84 25/50 for entire length. No insulation required outdoors. Insulation of secondary (overflow) condensate drains not required.

Refrigerant suction (low pressure vapor) line piping:

- AP ArmaFlex; Rated down to 40°F and having an ASTM E84 25/50 across all used insulation thicknesses. FM 4924 certified. Longitudinal reinforced lap seal for field cut installations.
 - Outdoor Applications - Painted with manufacturer's recommended water retardant ultraviolet solar radiation protective coating. Exterior cladding may be applied to lines with no degradation to performance and with engineer's approval.
- Exposed Indoor Applications - Black or white with paintable surface. Final finish color to be determined by architect.

Refrigerant liquid line piping:

- AP ArmaFlex; Minimum 150°F rating and having an ASTM E84 25/50 across all used insulation thicknesses. FM 4924 certified. Longitudinal reinforced lap seal for field cut installations.
 - Outdoor Applications - Painted with manufacturer's recommended water retardant ultraviolet solar radiation protective coating. Exterior cladding may be applied to lines with no degradation to performance and with engineer's approval.

Minimum installed R-value or thickness shall be per the local energy code.

Per 2015 IECC, Table C403.2.10

- Minimum 0.5" thick for pipes less than 1.5"
- Minimum 1" thick for pipes 8" or larger

Based on fluid temperature of 40°F to 60° and conductivity of 0.21 to 0.27 Btu per inch/hr-ft-°F. For insulations not defined above, submit formal calculations using the equation in the notes of Table C403.2.10.

23 08 00 COMMISSIONING OF HVAC

All projects less than 480,000 Btu/h cooling capacity and 600,000 Btu/h combined service water-heating and space-heating capacity or with systems that serve individual dwelling and sleeping units: Test and balance contractor shall observe HVAC control systems and document that all control elements are calibrated, adjusted, and in proper working condition.

23 09 23 ELECTRIC CONTROLS FOR HVAC

Electric: programmable multistage thermostats, automatic changeover, battery backup. Honeywell TB8220 series or equal.

23 09 93.11 SEQUENCES OF OPERATION

ALL SYSTEMS

- Dead Bands:** Where used to control both heating and cooling, automatic changeover zone thermostatic controls shall be capable of providing a temperature range or dead band of at least 5°F within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum. Exceptions: Special applications where wide temperature ranges are not acceptable (retirement homes, data processing, museums, and/or varied hospital areas) and are approved by the authority having jurisdiction.
- Automatic Shutdown:** Each HVAC system shall have controls that can start and stop the system under different time schedules for seven different day types per week, are capable of retaining programming and time setting during loss of power for a period of at least 10 hours, and include an accessible manual override, or equivalent function, that allows temporary operation of the system for up to two hours.
- Setback Controls:** Heating systems have the capability to automatically restart and temporarily operate the system to maintain zone temperatures above a heating setpoint adjustable down to 55°F or lower. Cooling systems shall have the capability to automatically restart and temporarily operate the system as required to maintain zone temperatures below a cooling setpoint adjustable up to 85°F or higher or to prevent high space humidity levels.
- Optimum (Automatic) Start Controls:** Individual heating and cooling air distribution systems, served by one or more supply fans, shall have optimum start controls. The control algorithm shall, as a minimum, be a function of the difference between space temperature and occupied setpoint and the amount of time prior to scheduled occupancy.
- Gravity Hoods, Vents, and Ventilators.** All outdoor air supply and exhaust hoods, vents, and ventilators shall have motorized dampers that automatically shut when the spaces served are not in use.
- Shutoff Damper Controls.** Both outdoor air supply and exhaust systems shall be equipped with motorized dampers that automatically shut when the systems or spaces served are not in use. Ventilation outdoor air dampers shall automatically shut off during preoccupancy building warm-up, cool down, and setback. Exceptions:
 - Gravity (non-motorized) dampers are acceptable in exhaust systems in ASHRAE 90.1 2007 climate zones 1, 2, 3, such as City of Houston.
 - Gravity (non-motorized) dampers are acceptable in systems with a design outdoor air intake or exhaust capacity of 300 cfm or less.
- Adjustments to sequences of operation.** Make programming, set point, and other changes to the Sequences of Operation as directed by Engineer as a result of submittal/ shop drawing review, commissioning activities or issues discovered during the warranty period.

Operating Hours

- Occupied Hours
 - Also known as "normal operation" or "daytime operation". Zone devices shall maintain occupied zone temperature setpoint and humidity. Ventilation and exhaust system shall be energized. System shall default to "occupied mode"
 - Contractor to verify occupied hours with building owner, tenant, and/or building engineer. Hours could differ from business and office hours.
- Unoccupied Hours
 - Also known as "nighttime operation". Hours covers zones that are not occupied. Zone devices shall maintain unoccupied zone temperature setpoint and humidity. Ventilation system shall be energized to unoccupied set point which is set to satisfy 2013 ASHRAE 62.1.
- Occupied Bypass
 - Temporary setting to switch a predetermined "unoccupied" zone to "occupied". Temporary override time period shall be user adjustable. Owner or building engineer shall determine if override option to be available to tenant from space sensor face or through web portal. If provided, override button(s) shall be able to activate and cancel override.

23 31 00 HVAC DUCTS

Do not fabricate duct from these drawings, confirm all dimensions and available space in field. Dimensions given on drawings are inside free area, sheet metal is larger on lined duct. Branch takeoffs to have 45-degree entry fitting with volume damper. Elbows to be radius type with minimum centerline radius 1.5 times width or mitered elbows with single thickness turning vanes. Snap-lock is prohibited for medium and high-pressure duct classifications.

Sheet metal: Use galvanized sheet metal, conforming to current SMACNA for construction, reinforcing, support and other aspects.

PRESSURE CLASS:

- Supply from single zone units: +1"
- Return: -1"
- Exhaust: -1" upstream of fan, 1" downstream

DUCT SEALING:

- Definitions (per ASHRAE SYSTEMS & EQUIPMENT 2008 TABLE 18-1):
 - Seal Level A: All transverse joints and longitudinal seams, and all duct wall penetrations
 - Seal Level B: All transverse joints and longitudinal seams
 - Round or flat oval spiral seams need not be sealed

DUCT LINER / INSULATION SCHEDULE:

- Rectangular supply: Unlined, externally insulated, except that 25 feet closest to fan or air units shall be internally lined
- Round supply: Unlined, externally insulated
- Return duct- Internal liner
- Exhaust- No liner, no insulation; except that exhaust ducts in non-conditioned attics shall be externally insulated
- Outside air – Unlined, externally insulated, except that 15 feet closest to a fan shall be internally lined. Ductwork upstream and downstream on humidifier up to the fan shall remain unlined if humidifier (manifold) is present.
- Kitchen or food preparation area supply ducts – unlined, externally insulated
- Exhaust/relief upstream of energy recovery ventilator – Unlined, uninsulated; except that 15 feet closest to fan shall be internally lined.
- Exhaust/relief downstream of energy recovery ventilator wheel – internally lined.
- Outside air to and from energy recovery ventilator: Unlined, externally insulated, except that 15 ft closest to a fan shall be internally lined.

Liner Product (when specified in duct description above):

- Acceptable Manufacturers: *Johns Manville Linacoustic; Certainteed Tough Gard or equal.*
- Density: 1.5 PCF (pounds per cubic foot)
- Comply with latest version of
- Material
 - Thermal - ASTM C1071, ASTM C518
 - Sound – ASTM C1071, ASTM C423, ASTM E795
- Fungi Resistance – ASM C1338 & G21
- Fire/Smoke - UL 723, ASTM E84, NFPA 259
- Greenguard certified
- Attachments and adhesives: Foster 85-60, Childers CP-127, or equivalent with 90% coverage and stick clips. Leading edges and transverse joints to be sealed with Foster 81-42W (white), CP-50AMV1 (white), CP-135 (black), or equivalent.

Liner Thickness: R-values shall meet duct insulation values spec'd in section 23 07 13. In addition to meeting R-values, the following minimum thicknesses shall be maintained for acoustic reasons:

- Supply duct: 1"
- Return ducts: 1/2" except that within 15 feet of fan or air unit use 1".
- Return air sound traps: 1".

Exposed ductwork shall be internally lined based on liner product and thickness paragraphs above. Coordinate duct finish with architect.

Flex duct

Shall not exceed 5 feet in length, nor be bent more than 90 degrees. Flex duct shall be same size as diffuser neck. Flexmaster 1M, 3M, 5M or equal; CPE or foil/fiberglass/polyester laminate, supported by helically wound spring steel wire; fiberglass insulation; aluminized vapor barrier film. Product shall have listed marks by either ETL, or UL and shall have minimum 2550 Flame/Smoke ratings. Pressure Rating: 6-inches WG positive, 1-inch WG negative. Vapor barrier Perm rating of 0.10 or less per ASTM E96 procedure A. Insulation: R value to meet that required for ductwork. Inner core shall maintain shape and full free area at 90-degree bends without glues or reinforcement. Secure with Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action. Acceptable alternative is to use a nylon strap listed and labeled in accordance with standard UL 181B and marked '181B-C'. Contact engineer is planning on using an adhesive plus sheet metal screws.

23 33 00 AIR DUCT ACCESSORIES

Provide manual balancing dampers in all supply and exhaust branches. Provide manual balancing dampers in outside air and return ducts to each air unit. Provide manual balancing damper at each motorized duct damper location.

MANUAL VOLUME DAMPERS: per SMACNA HVAC Duct Construction Standards - Metal and Flexible. Single blade dampers for duct sizes up to 6 x 30 inch. Multi-Blade Damper: opposed blade pattern. Assemble center and edge crimped blades in prime coated or galvanized frame channel with suitable hardware. Except in round ductwork 12 inches and smaller, furnish end bearings. Furnish closed end bearings on ducts having pressure classification over 2 inches wg.

Furnish locking, indicating quadrant regulators on single and multi-blade dampers. On insulated ducts mount quadrant regulators on standoff mounting brackets, bases, or adapters to allow full insulation thickness. Where rod lengths exceed 30 inches furnish regulator at both ends.

All balance damper operators shall be accessible via access panel, lay-in ceiling or remote cable operator. All motorized damper operators shall be accessible and shall not block the air stream.

Outdoor air, supply and exhaust air dampers shall have a maximum leakage rate of 4 cfm per square foot at one inch water gauge.

BACKDRAFT DAMPERS: Parallel-action, gravity-balanced, galv. 16 gage thick steel or extruded aluminum blades with felt or flexible vinyl sealed edges. Blades linked together in rattle-free manner with 90-degree stop, steel ball bearings, and plated steel pivot pin. Adjustment device to permit setting for varying differential static pressure.

DUCT ACCESS DOORS: per SMACNA, rigid and close fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, furnish same insulating value as adjacent duct, plus sheet metal cover. Less than 12 inches sq., secure with sash locks. Up to 18 inches sq.: two hinges and two sash locks. Up to 24 x 48 inches: Three hinges and two compression latches. Access panels with sheet metal screw fasteners or requiring use of tools are not acceptable. Stencil or label fire and smoke damper access doors per local requirements

FLEXIBLE CONNECTIONS: per SMACNA. Fabric crimped into 24 gage galvanized metal edging strip. Fabric: Approx. 3 inches wide. UL listed fire-retardant neoprene coated woven glass fiber fabric conforming to NFPA 90A.

DUCT TEST HOLES: airtight flanged fittings with screw cap. Furnish extended neck fittings to clear insulation.

23 37 13 AIR INLETS AND OUTLETS

For air devices located in lay-in ceilings, vendor shall confirm ceiling grid type and size prior to ordering air devices. Acceptable Manufacturers: Titus, Price, MetalAire, Nailor, Kreuger

23 41 00 HVAC AIR CLEANING DEVICES

Filters shall be 2", 30 percent efficiency as per ASHRAE 52.2 -2017. Maximum initial resistance at 500 fpm = 0.25". *AAF Perfect Pleat HC M8* or equal. Use standard sizes only.

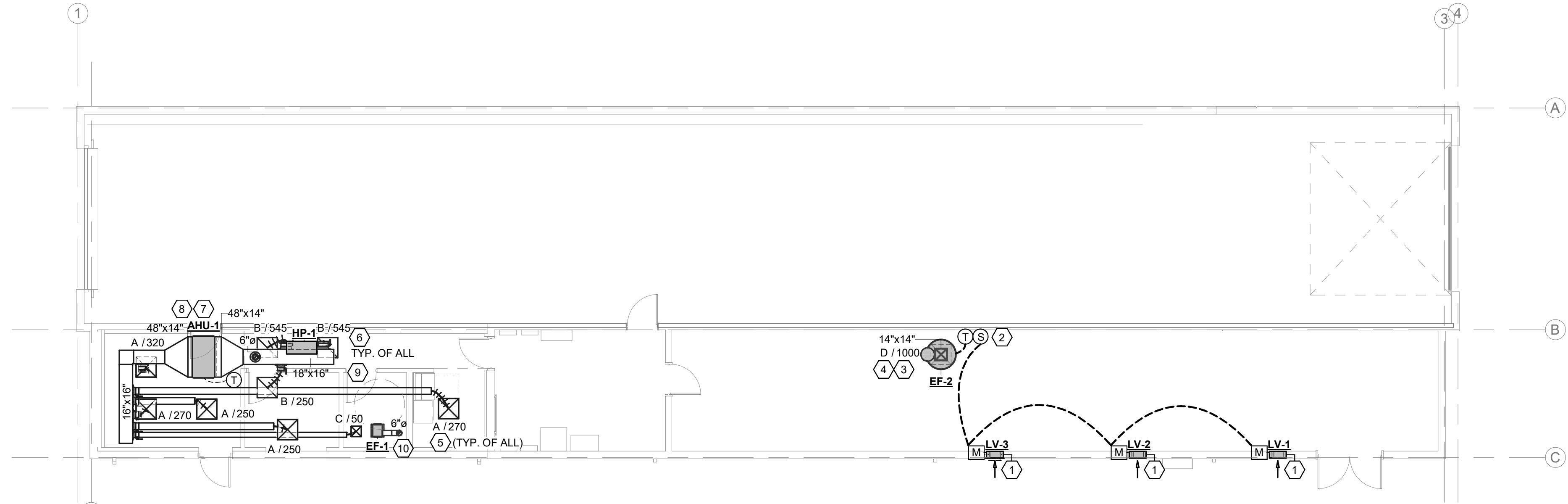
Provide construction filters for the duration of this project in all air units serving the project area. Replace with new filters after balancing and adjusting is complete. Provide temporary filter media over all return or exhaust grilles in project area, to keep construction dust out of air systems.

23 74 16.11 PACKAGED ROOFTOP AIR CONDITIONING UNITS

- Acceptable Manufacturers:
 - Five (5) Nominal (AHRI) Refrigeration Tons or less: Trane, Greenheck, Carrier, Daikin, Aaon, or Johnson Controls (aka York & Tempmaster)
 - Systems larger than Five (5) Nominal (AHRI) Refrigeration Tons: Aaon, Trane, Daikin (MPS & Rebel line), Johnson Controls (aka York & Tempmaster; units with IntelliSpeed), Greenheck, or Lennox (units with MSAV)
 - Comply with latest version of UL 1995, ASHRAE 62.1, AHRI 270, & ASHRAE 90.1
 - Certified to latest version of AHRI 210/240 or 340/360; When provided with ERV - AHRI 1060. This is to ensure compliance with United States (U.S.) Department of Energy (D.O.E.) Building Technology Office (B.T.O) minimum energy conservation standards (10 CFR 431.97 or latest).
- Cabinet: Formed and reinforced steel panels. Hinged to allow access to internal parts and components with toolless quarter turn handle(s) and sealed joint sections. Pitched roof panels, electrical and plumbing knockouts (through the base or side) with grommet seals & lifting lugs. Manufacturer's standard paint with option for Architect to choose paint color. Minimum 2-inch-deep stainless drain pan. Factory recommended insulation; double wall or foil faced to prevent erosion to the airstream. Filter rack for 2" or 4" cartridge type (2" and 4" rack for DOAS applications and when scheduled). Single point power with control-circuit transformer, external disconnect and convenience outlet.
- Fan: Factory balanced statically and dynamically. Direct drive fans shall be resiliently mounted in the fan inlet. Belt driven fans shall be installed on an adjustable fan base resiliently mounted in the casing. Supply fan shall have aluminum wheels and galvanized scrolls. Condenser propeller fan shall be mounted on shaft of permanently lubricated motor. Provide VFD or ECM for condenser fans for head pressure control if modulating variable speed compressors are provided.
- Motors: shall comply with section 23 05 13. Large enough to avoid motor operation above 1.0 service factor.
- Coils:
 - Refrigerant Coils: Aluminum plate fin and seamless internally grooved copper tube in steel casing with equalizing type vertical distributor. Suction discharge bypass valve for hot gas reheat. Hail guards, when scheduled, on condenser coil sections.
 - Electric-Resistance Heating: Resistance wire of 80 percent nickel and 20 percent chromium, supported and insulated by floating ceramic bushings recessed into casing openings, fastened to supporting brackets, and mounted in galvanized-steel frame. Terminate elements in stainless-steel machine-staked terminals secured with stainless-steel hardware. Integral overtemperature and overcurrent protection.
- Refrigerant circuit: Compressor(s) mounted on vibration isolators with internal overcurrent and high temperature protection, internal pressure relief, and crankcase heaters. Appropriate expansion valve, refrigerant filter/dryer, pressure safety switches, motor thermal overload protection, suction and liquid line service valves, low ambient kit, and anti-short cycling and time delay relay. Dual compressors for units greater than 6-tons. Sound blanket(s) for modulating compressors.
- Dampers: Motorized with adjustable position(s). Rain hoods and bird screens. Modulating outside air damper and return pressure relief.
- Curb: Factory or third party insulated curb. See specification section 23 05 29 & 23 05 48.
- Controls: Condensate overflow switch, dirty filter switch, and air proving switch. Provide phase monitor for variable speed and/or VFD applications. Provide conduit for control wiring that is ran outdoors and outside unit.
- Basic Standalone: Wall mounted seven-day programmable thermostat or sensor. When required for proper operation, wall mounted humidistat or sensor with set point and indication readings. Humidistat and thermostat may be integral device.

MECHANICAL PLAN

1/8" = 1'-0"



- ### KEYED NOTES
- INTAKE LOUVER WITH ONE ACTUATOR PER DAMPER. MULTIPLES LIKELY REQUIRED PER LOUVER. INTERLOCK ACTUATORS WITH EF-2. NO UNNECESSARY BLOCK OR PANEL REMOVAL UPON INSTALLATION. LOCATION PER ARCHITECTURAL. EXTERIOR FINISH OF LOUVER SHALL MATCH ARCHITECTURAL STANDARD.
 - PROVIDE TEMPERATURE SENSOR, WIRED IN PARALLEL WITH CONNECTION FROM EF-1. SENSOR SHALL SIGNAL LOW LEAK MOTORIZED DAMPER TO OPEN AT 65 DEGREE FAHRENHEIT. EF-1 SHALL ENERGIZE AT 80 FAHRENHEIT.
 - NEW EXHAUST GRILLE. PROVIDE DUCT, FLEX, AND DUCT TRANSITIONS AS REQUIRED. SEE SCHEDULE.
 - NEW ROOF MOUNTED EXHAUST FAN TO BE LOCATED AS SHOWN. PROVIDE WEATHERPROOF DUCT CAP AND SEAL ROOF OPENING WATER TIGHT. SEE SCHEDULE AND DETAIL.
 - NEW SUPPLY AIR DIFFUSER SHALL BE LOCATED AS SHOWN. BALANCE TO CFM INDICATED. PROVIDE NEW SPIN-INS, SPIRAL DUCTWORK, AND FLEX DUCT. SEE SCHEDULE AND DETAILS.
 - NEW DUCTED RETURN GRILLE. PROVIDE DUCT, FLEX, AND DUCT TRANSITIONS AS REQUIRED. SEE SCHEDULE.
 - COORDINATE AHU INSTALLATION ON SITE. PROVIDE DRAIN PAN FOR AHU-1. PROVIDE ALL SERVICE ACCESS PER REQUIREMENTS. FIELD ROUTE CONDENSATE. REFER TO PLUMBING. FIELD ROUTE REFRIGERANT LINESET TO UNIT ON EXTERIOR. PROVIDE LABEL WITH EQUIPMENT NUMBER ON EQUIPMENT AND ON RESPECTIVE MONITORING DEVICE. (THERMOSTATS, SENSORS, ETC.) TYPICAL.
 - PROVIDE THERMOSTATIC CONTROL PER AHU SCHEDULE NOTES.
 - LOCATE OUTDOOR UNIT ON ROOF.
 - NEW EXHAUST FAN. ROUTE EXHAUST DUCTWORK THROUGH ROOF. PROVIDE WEATHERPROOF DUCT CAP AND SEAL ROOF OPENING WATER TIGHT. SEE SCHEDULE AND DETAIL.

LOUVER SCHEDULE

Project: Suds Car Wash - San Marcos

Designation	LV-1 thru LV-3
Module Size (Inches)	24" x 24"
Max Vol. (CFM)	333
Velocity (FPM)	205
P.D (in. w.g.)	0.01
Free Area (%)	40.7
Free Area (sq. ft.)	1.63
Manufacturer	Greenheck
Model No.	EHH-601
Remarks	Wind Driven Louver Intake

Notes

- Carefully coordinate installation with wall type.
- No unnecessary block removal.
- Provide opposed blade motorized damper at louver.

AIR DEVICE SCHEDULE

Project: Suds Car Wash - San Marcos

Tag	Service	Manufacturer & Model	Face Size	Neck Size	CFM	Finish	Material	Notes
A	Supply	Titus TMS	24"x24"	6"	0-160	White	Steel	1,2,3,4,5,6,7
				8"	161-280			
				10"	281-410			
B	Return	Titus PAR Lay-In	24"x24"	6"	0-80	White	Steel	1,2,3,5,6,7
				8"	81-170			
				10"	171-305			
C	Supply	Titus TMS	12"x12"	6"	0-100	White	Steel	1,2,3,4,5,6,7
				12"	306-550			
D	Exhaust	Titus 50F	24"x24"	14"x14"	0-1,000	White	Steel	1,2,3,4,5,6,7

Notes

- MOUNTING FRAMES SHALL BE COMPATIBLE WITH CEILING TYPE.
- PROVIDE OPPOSED BLADE DAMPER.
- PROVIDE FINISH PER ARCHITECTURAL.
- ALL CEILING DIFFUSERS ARE 4-WAY DISCHARGE, UNLESS OTHERWISE INDICATED ON PLANS.
- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- DUCT RUNOUTS ARE SAME SIZE AS AIR DEVICE NECK NOTED ON PLANS.
- OR APPROVED ALTERNATE.

FAN SCHEDULE

Project: Suds Car Wash - San Marcos

Tag	EF-1	EF-2
Site Elevation (ft.)	88	88
Service	Exhaust	Exhaust
Area Served	Restroom	Equipment Room
Fan Type	Ceiling	Roof Mounted
Airflow [CFM]	50	1,000
Ext. Static Pressure ["wc]	0.3	0.5
Drive	Direct	Direct
Motor Data	80 W	1/4 HP
Volts/Ph/Hz	115/1/60	115/1/60
Accessories		
Factory Disconnect	Yes	Yes
Backdraft Damper	Yes, See plan	Yes, See plan
Fan Speed Controller	Yes	Yes
Notes	2,3,4,5,6	1,3,4,5,6
Manufacturer or Eq.	Greenheck	Greenheck
Model or Eq.	SP-110	G-099-VG

Notes

- Fan shall be controlled by a thermostat.
- Fan shall be interlocked with room lights.
- Mount fan per manufacturer's recommendations.
- Maintain code required distance between exhaust outlet and outside air intakes.
- Provide with speed control to be mounted on J-Box above ceiling.
- Or approved equal by Cook.

SPLIT SYSTEM HEAT PUMP SCHEDULE

Project: Suds Car Wash - San Marcos

Tag	AHU-1
Serves	Customer Svc/Office
Total CFM	1410
O.A CFM	70
Max E.S.P (In. W.G)	0.3
H.P.	6.0 KW
Entering Air (DB/WB [°F])	80/67
Total Capacity (MBH)	48.0
Volts/Phase	208/1
Filter Type	Pleated, MERV 8
Filters Thickness (inches)	1"
Manufacturer	LG
System Model No.	LHN488HV
Weights (lbs)	95.9
Tag	HP-1
Total Cap. (MBH)	48
Refrig. Temp (F)	10
Ambient Temp (F)	95
Total Cap. (MBH)	56
Heat Pump @ F	47
No. of Compressors	1
R.L.A (Each)	21.0
No. of Fans	2
Voltage/Phase	208/1
MCA/MOCP	32/40
Manufacturer	LG
Model No.	LUJ480HHV
SEER/EER/HSPF	18.7 / 12.5 / 11.2
Weight (lbs)	210.9

Notes

- Required Btu/h are net; fan heat has not been subtracted.
- External static includes ductwork, diffusers, & dirt accumulation on filters
- Motor(s) shall be premium efficiency.
- Unit shall conform to ASHRAE 90.1-2013 or local energy code. Most stringent requirements apply.
- If model number & schedule conflict; most stringent requirements apply.
- Evaporator shall be provided with internal float switch and shall shut unit off if primary drain becomes restricted.
- Leaving air during heating shall not exceed 87°F.
- Single point electrical connection includes internal fusing and contactors for starts and motors.
- Coordinate final controls requirements with owner's vendor.
- Stated weights do not include accessories.
- Deviation from basis of design shall maintain or be provided with lower sound pressure levels than stated above. Any increase above this threshold shall be approved by engineer before bidding.
- Or approved equal by Lennox, Carrier, York, or Samsung at contractor's expense.
- Provide programmable thermostat unless wired controller is available with unit.
- Alternate, at owner's option. Provide thermostat adaptor TADPT1 for connection to Nest thermostat.

System Checksums

By KCI TECHNOLOGIES

Project Name: sudloads.trc

Dataset Name: sudloads.trc

TRACED 700 v6.3.5 calculated at 05:31 PM on 11/14/2022
 Alternate - 1 - System Checksums Report Page 1 of 1

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Space	Plenum	Net	Percent	Space	Plenum	Net	Percent	Space Peak	Coil Peak	Percent	SADB	Cooling	Heating		
Sens. + Lat	Sens. + Lat	Total	Of Total	Sensible	Of Total	Total	Of Total	Space Sens	Tot Sens	Of Total	Ra Plenum	79.5	75.1		
Btu/h	Btu/h	Btu/h	(%)	Btu/h	(%)	Btu/h	(%)	Btu/h	Btu/h	(%)	Return	79.5	67.7		
Envelope Loads											Ret/OA	79.5 <td>67.7</td>	67.7		
Skylite Solar	0	0	0	0	0	0	0	0	0	0	Fa Mtr/D	0.0	0.0		
Skylite Cond	0	0	0	0	0	0	0	0	0	0	Fa Frict	0.0	0.0		
Roof Cond	0	0	0	0	0	0	0	0	0	0	AHU Vent	0	0		
Glass Solar	8,839	8,839	27	13,988	54	8,839	27	-4,649	-46.35		Intil	0	0		
Glass/Door Cond	1,961	1,961	6	-332	-1	1,961	6	-5,060	-50.44		Min/Stop/Rh	1,250	1,250		
Wall Cond	25	460	1	27	0	25	0	-16	-322	3.21	Return	1,250	1,250		
Partition/Door	0	0	0	0	0	0	0	0	0	0	Exhaust	0	0		
Floor	0	0	0	0	0	0	0	0	0	0	Rn Esh	0	0		
Adjacent Floor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Auxiliary	0	0		
Infiltration	0	0	0	0	0	0	0	0	0	0	Leakage Dwn	0	0		
Sub Total ==>	10,522	9,299	19,821	61	13,063	53	19,821	-5,076	-10,030	100.00	Leakage Ups	0	0		
Internal Loads											% OA	0.0	0.0		
Lights	8,826	1,707	8,533	26	8,826	28	1,934	0	0	0.00	cfm/ft²	0.50	0.50		
People	2,500	0	2,500	8	1,250	5	0	0	0.00	0.00	cfm/ton	420.50			
Misc	1,707	0	1,707	5	7	Misc	0	0	0.00	0.00	ft/ton	840.82			
Sub Total ==>	11,033	1,707	12,739	39	9,783	39	1,707	0	0.00	0.00	Btu/hr-ft²	14.27	-5.31		
Ceiling Load	3,544	-3,544	0	0	1,934	8	Ceiling Load	-1,821	0	0.00	No. People	5			
Ventilation Load	0	0	0	0	0	0	Ventilation Load	0	0	0.00					
Adj Air Trans Heat	0	0	0	0	0	0	Adj Air Trans Heat	0	0	0.00					
Dehumid. Ov Sizing	0	0	0	0	0	0	Ov/Undr Sizing	0	0	0.00					
Ov/Undr Sizing	0	0	0	0	0	0	Exhaust Heat	0	0	0.00					
Exhaust Heat	0	0	0	0	0	0	OA Preheat Diff.	0	0	0.00					
Sup. Fan Heat	0	0	0	0	0	0	RA Preheat Diff.	0	0	0.00					
Ret. Fan Heat	0	0	0	0	0	0	Additional Reheat	0	0	0.00					
Duct Heat PkUp	-1,363	0	0	0	0	0	Underfr Sup Ht PkUp	0	0	0.00					
Underfr Sup Ht PkUp	0	0	0	0	0	0	Supply Air Leakage	0	0	0.00					
Supply Air Leakage	0	0	0	0	0	0	Grand Total ==>	25,059	6,098	32,560	100.00	24,779	-10,030	100.00	

COOLING COIL SELECTION				AREAS				HEATING COIL SELECTION			
Total Capacity	Sens Cap.	Coil Airflow	Enter DB/WB/HR	Gross Total	Glass	Capacity	Coil Airflow	Ent	Lvg		
ton	MBH	cfm	"F" "F" grlb	ft² (%)		MBH	cfm	"F" "F"	"F"		
Main Clg	3.0	35.7	34.3 1250 79.5 61.1 52.8	Floor	2,500	113.3	1,250	66.6	75.1		
Aux Htg	0.0	0.0	0.0 0.0 0.0 0.0	Part	0	0.0	0.0	0.0	0.0		
Opt Vent	0.0	0.0	0.0 0.0 0.0 0.0	Int Door	1	0.0	0.0	0.0	0.0		
Total	3.0	35.7		ExFlr	0	0.0	0.0	0.0	0.0		
				Roof	2,500	245	70	0	0.0		
				Wall	0	0	0	0	0.0		
				Opt Vent	0	0	0	0	0.0		
				Total		-13.3					

OUTSIDE AIR CALCULATIONS PER ASHRAE 62.1 & COH AMMENDMENTS

Area Type	A _z (ft²)	R _a (cfm/ft²)	P _z (# People)	R _p (cfm/person)
Breakrooms	55	0.12	1	5
Office Space	68	0.06	1	5
Lobbies/Prefunction	185	0.06	4	7.5

$$RA = \sum Ra \times Az = 22$$

$$RP = \sum Rp \times Pz = 40$$

$$Vbz = RP + RA = 62 \text{ CFM}$$

$$Voz = Vbz / Ez = 62 \text{ CFM}$$

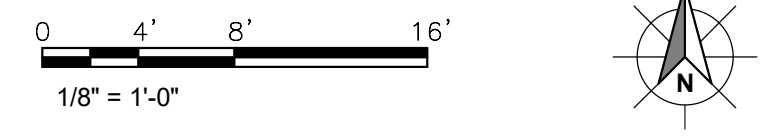
$$Zpz = Voz / Vpz = 0.0441$$

$$D = Ps / \sum Pz = 0.694$$

$$Vou = D \times (\sum Rp \times Pz) + \sum Ra \times Az = 50 \text{ CFM}$$

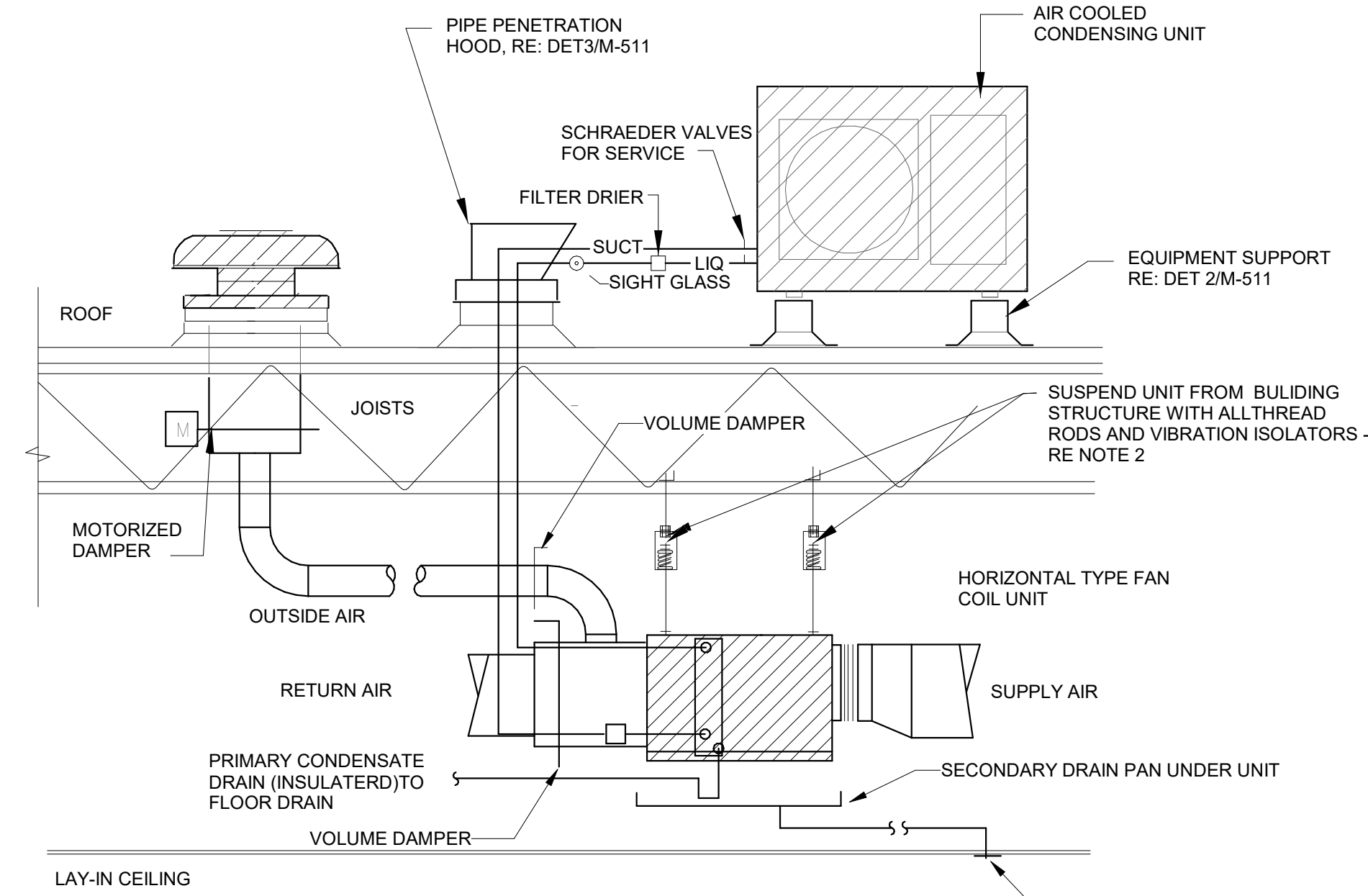
Vpz (primary airflow) =	1400	System Ventilation Efficiency (Table 403.5.2, 2012 UMC)
Ps (system population) =	6	MAX Zpz
$\sum Pz = (\text{zone population}) =$	8.64	< 0.15
$= \sum ((\text{zone default occupant density}) \times (\text{zone area}))$		< 0.25
Ev (system ventilation efficiency Per Table 403.5.2) =	1.0	< 0.35
		< 0.45
		< 0.55
		> 0.55
Ceiling supply of cool air.		see section 404.0
Ez (zone distribution effectiveness per Table 403.2.2)	1.0	
Vot (CFM) = Vou / Ev =		50

Scope of work outside air quantity must be at minimum 50 CFM



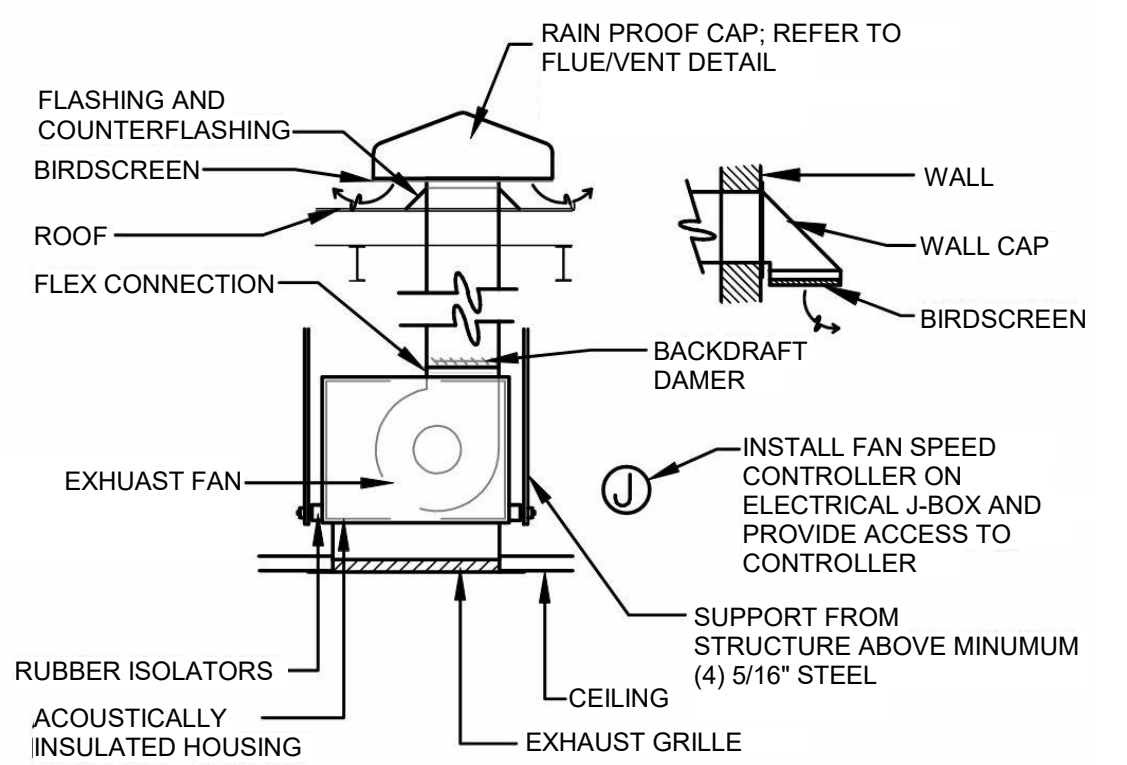
REVISIONS:

105-95-22	ISSUE FOR PERMIT
A105-95-28	IPC

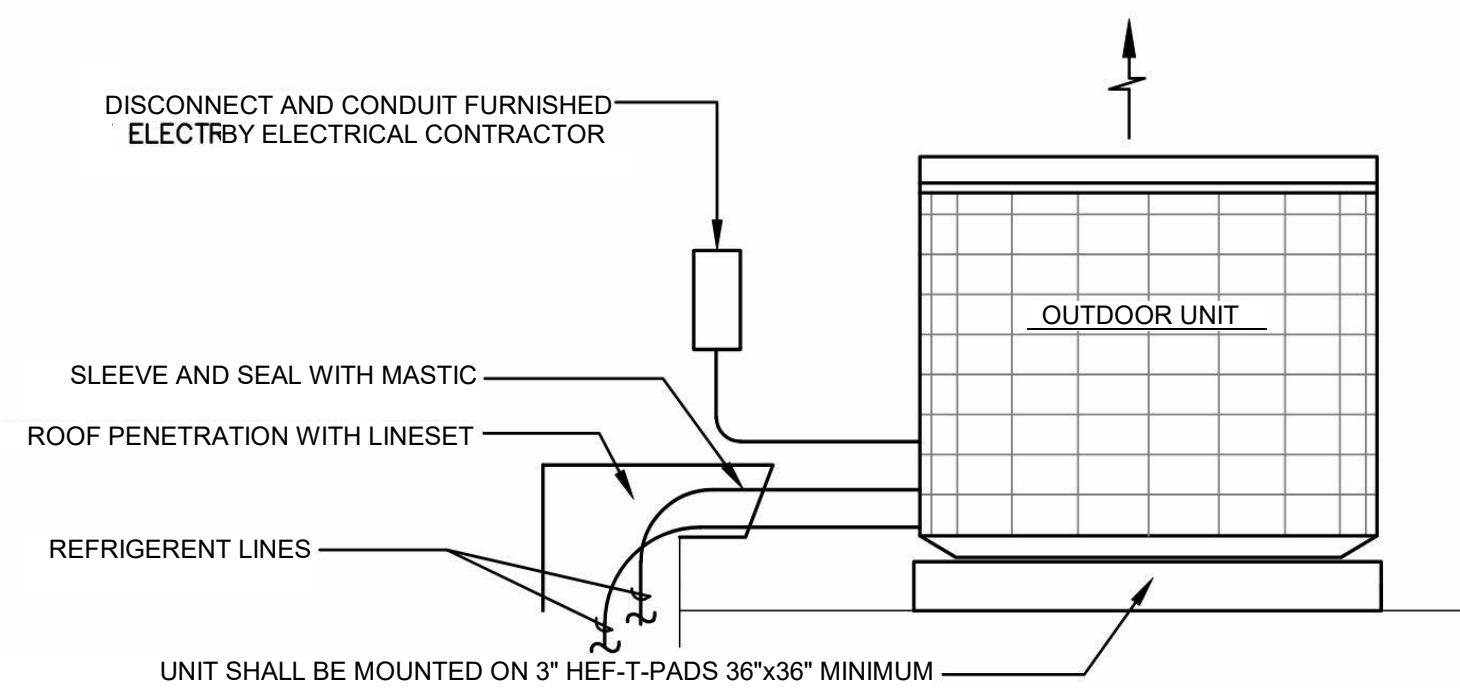


1. DRAIN PAN, SUPPORTS, PIPING ETC. SHALL NOT BLOCK ACCESS TO FILTERS OR UNIT ACCESS PANELS.
2. PLACE VIBRATION ISOLATORS AS CLOSE TO STRUCTURE AS POSSIBLE. CONTRACTOR MAY EXCLUDE VIBRATION ISOLATION IF UNIT IS INTERNALLY ISOLATED.
3. PROVIDE DRAIN PAN UNDER ENTIRE UNIT.
4. 3/4" SECONDARY DRAIN; DRIP OVER MOP SINK OR OTHER CODE APPROVED VIEWABLE LOCATION. PROVIDE CHROME ESCUTCHEON AT CEILING. ALTERNATIVELY.

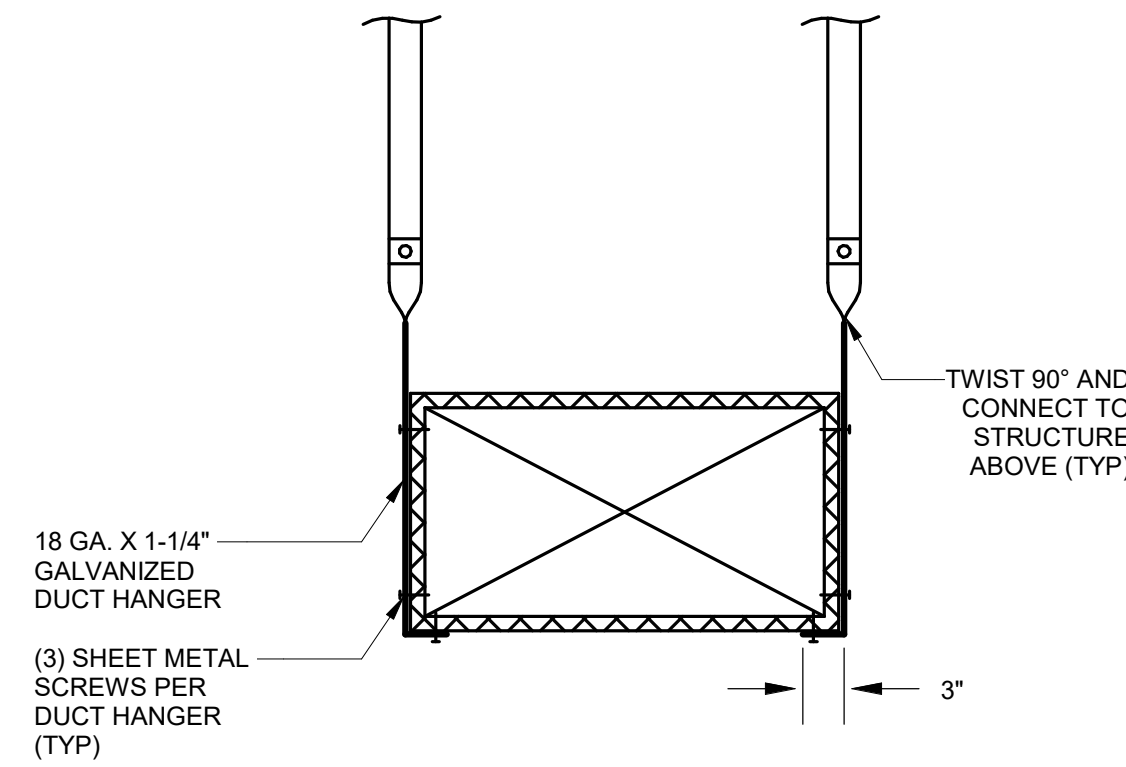
7 SPLIT SYSTEM HORIZONTAL TYPE
NOT TO SCALE



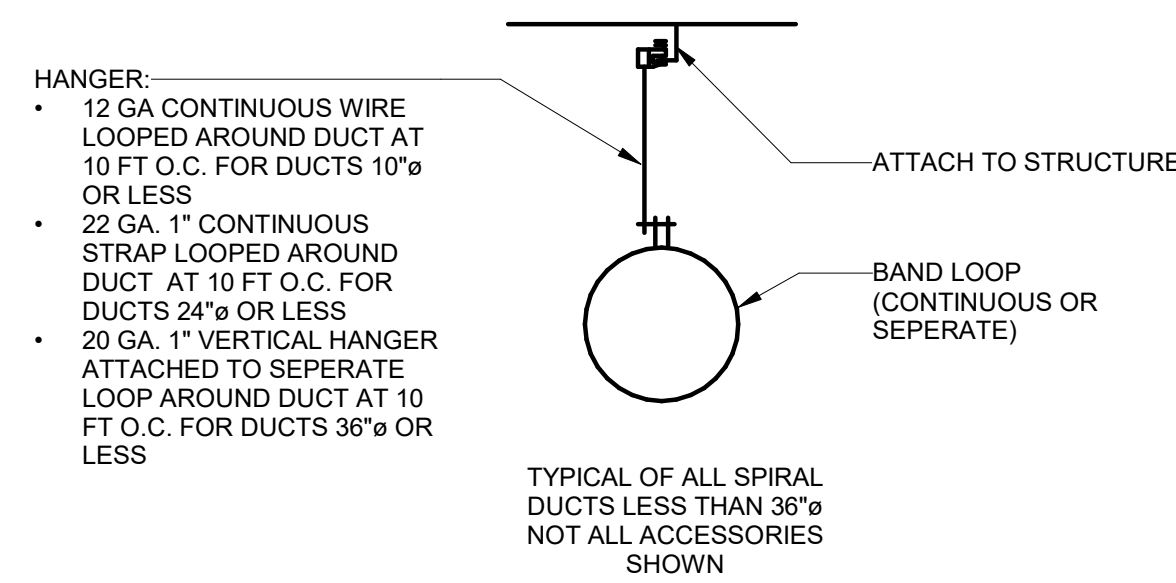
8 EXHAUST FAN DETAIL
NOT TO SCALE



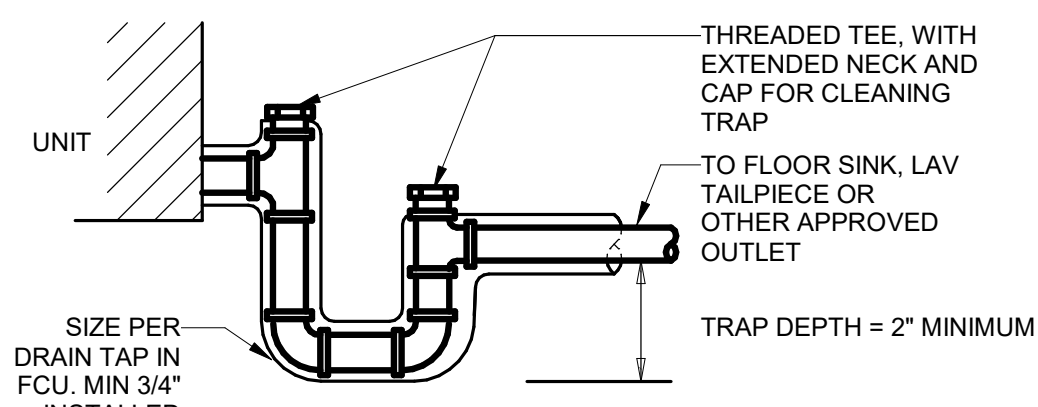
9 ROOF MOUNT CONDENSING UNIT DETAIL
NOT TO SCALE



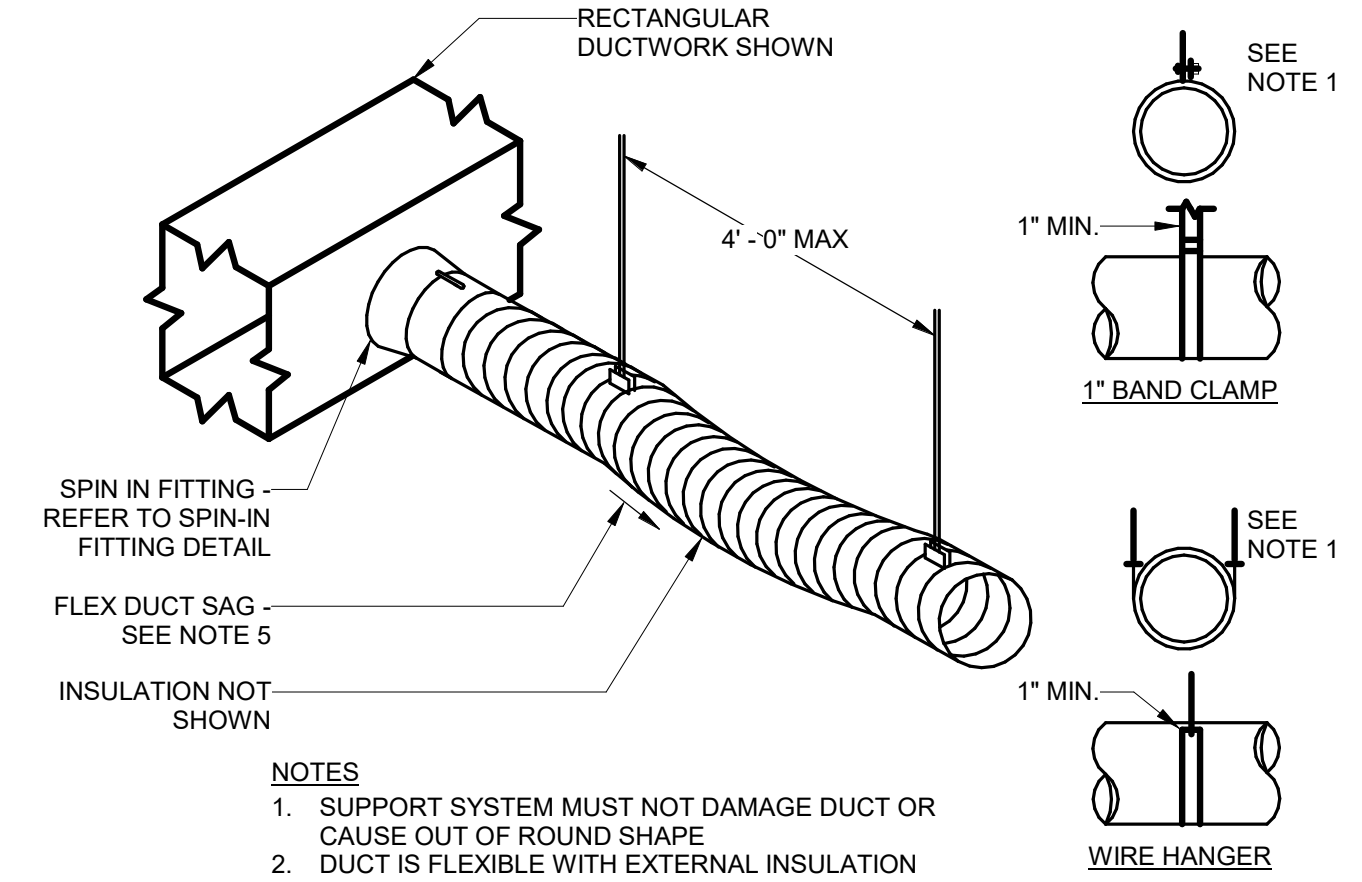
4 DUCT HANGER
NOT TO SCALE



5 SPIRAL DUCT HANGER
NOT TO SCALE

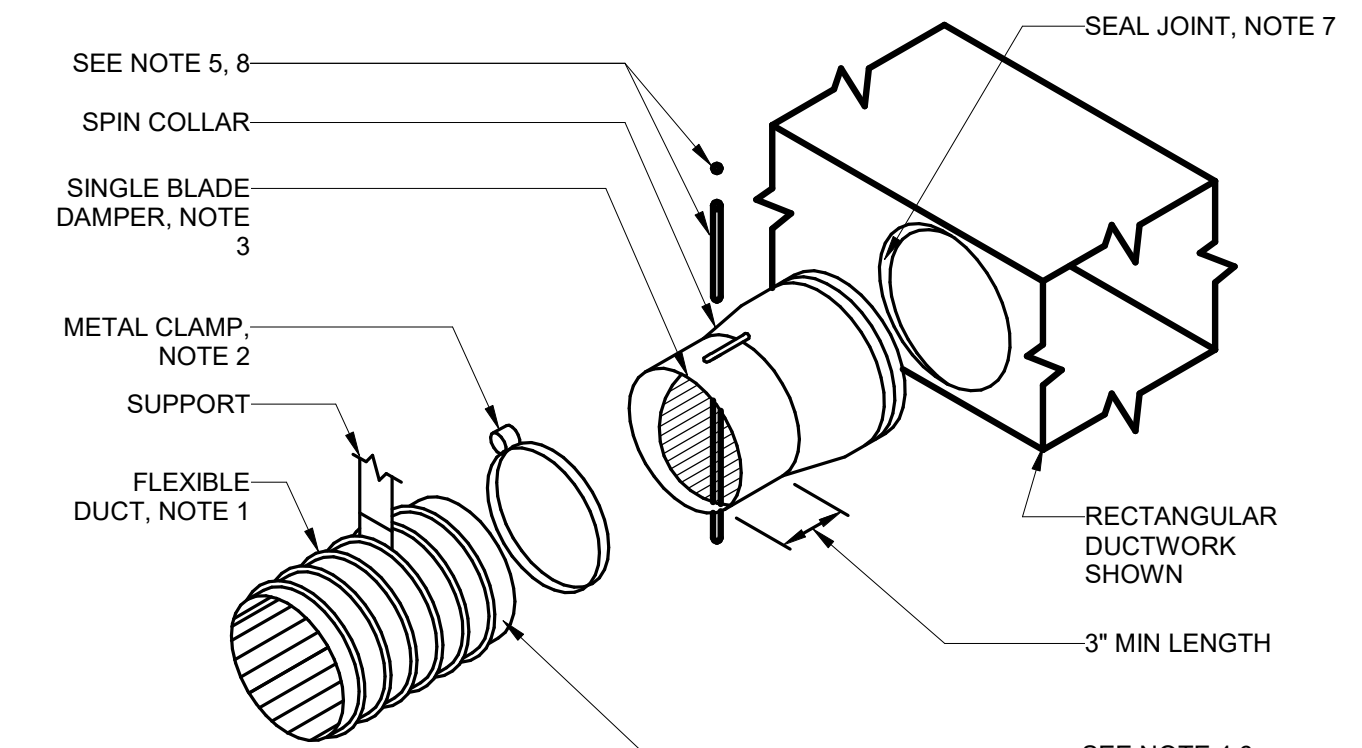


6 CONDENSATE DRAIN TRAP FOR FAN COILS
NOT TO SCALE



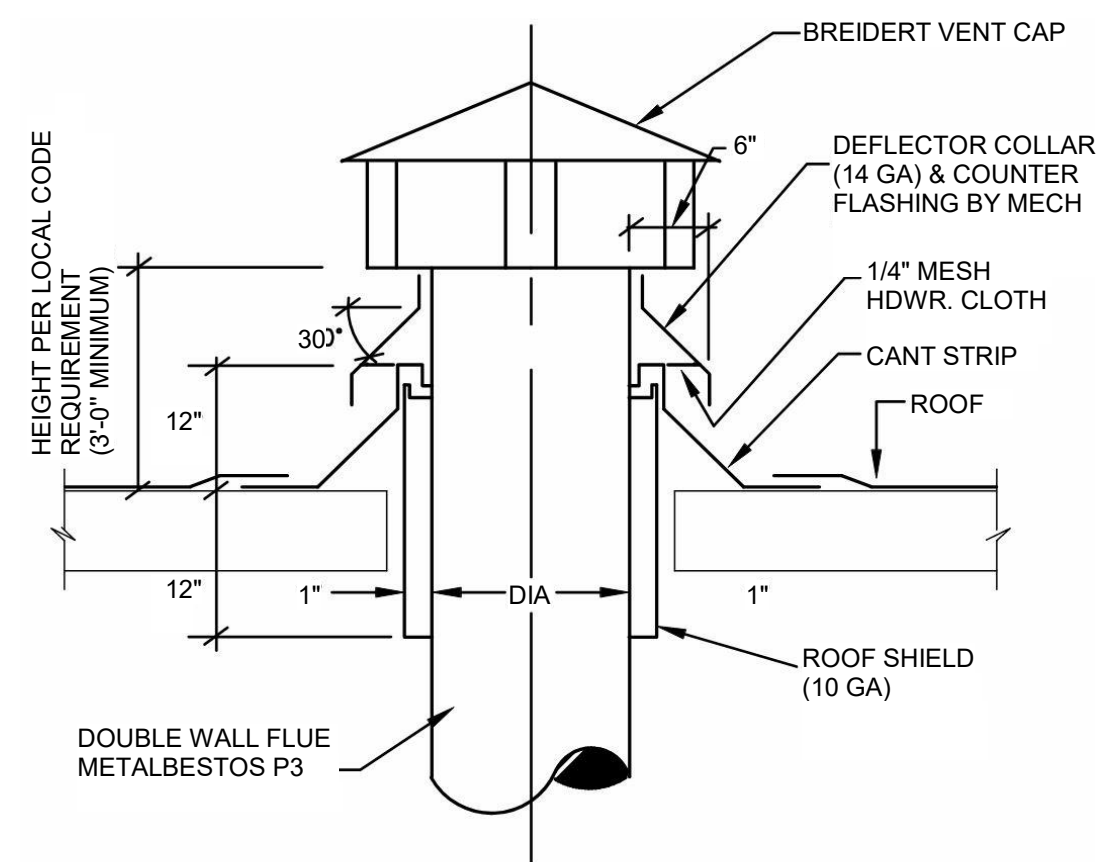
- NOTES
1. SUPPORT SYSTEM MUST NOT DAMAGE DUCT OR CAUSE OUT OF ROUND SHAPE.
 2. DUCT IS FLEXIBLE WITH EXTERNAL INSULATION AND VAPOR BARRIER JACKETING.
 3. MINIMUM CENTER LINE BEND RADIUS IS ONE DIAMETER (OR INSIDE RADIUS OF D/2).
 4. DUCT SHOULD EXTEND STRAIGHT FOR SEVERAL INCHES FROM A CONNECTION BEFORE BENDING.
 5. MAXIMUM SAG OF 1/2\"/>

1 FLEX DUCT SUPPORT REQUIREMENTS
NOT TO SCALE



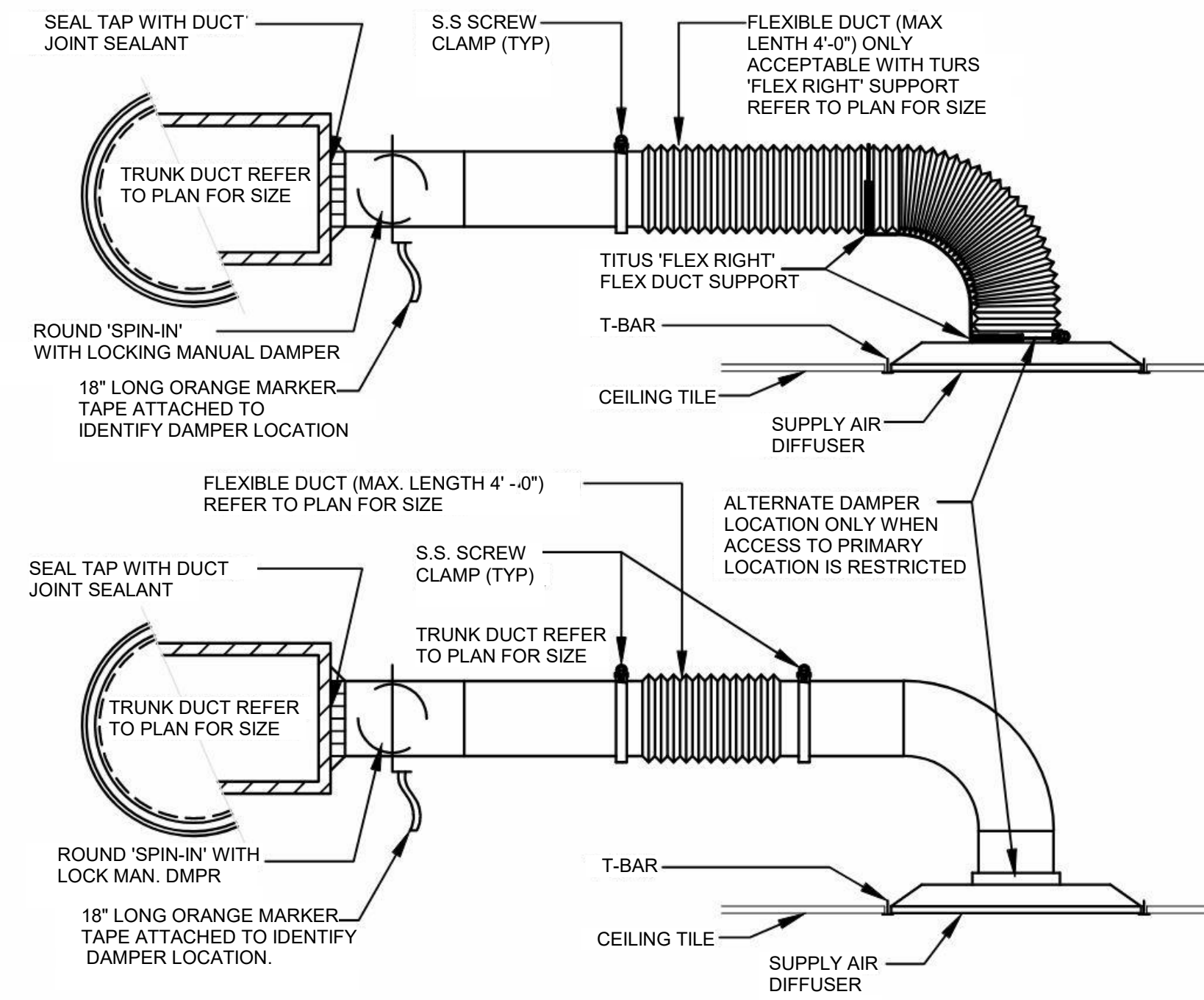
- NOTES
1. SUPPORT AS REQUIRED.
 2. BAND FLEX TO COLLAR 1/2\"/>

2 SPIN-IN FITTING WITH DAMPER
NOT TO SCALE



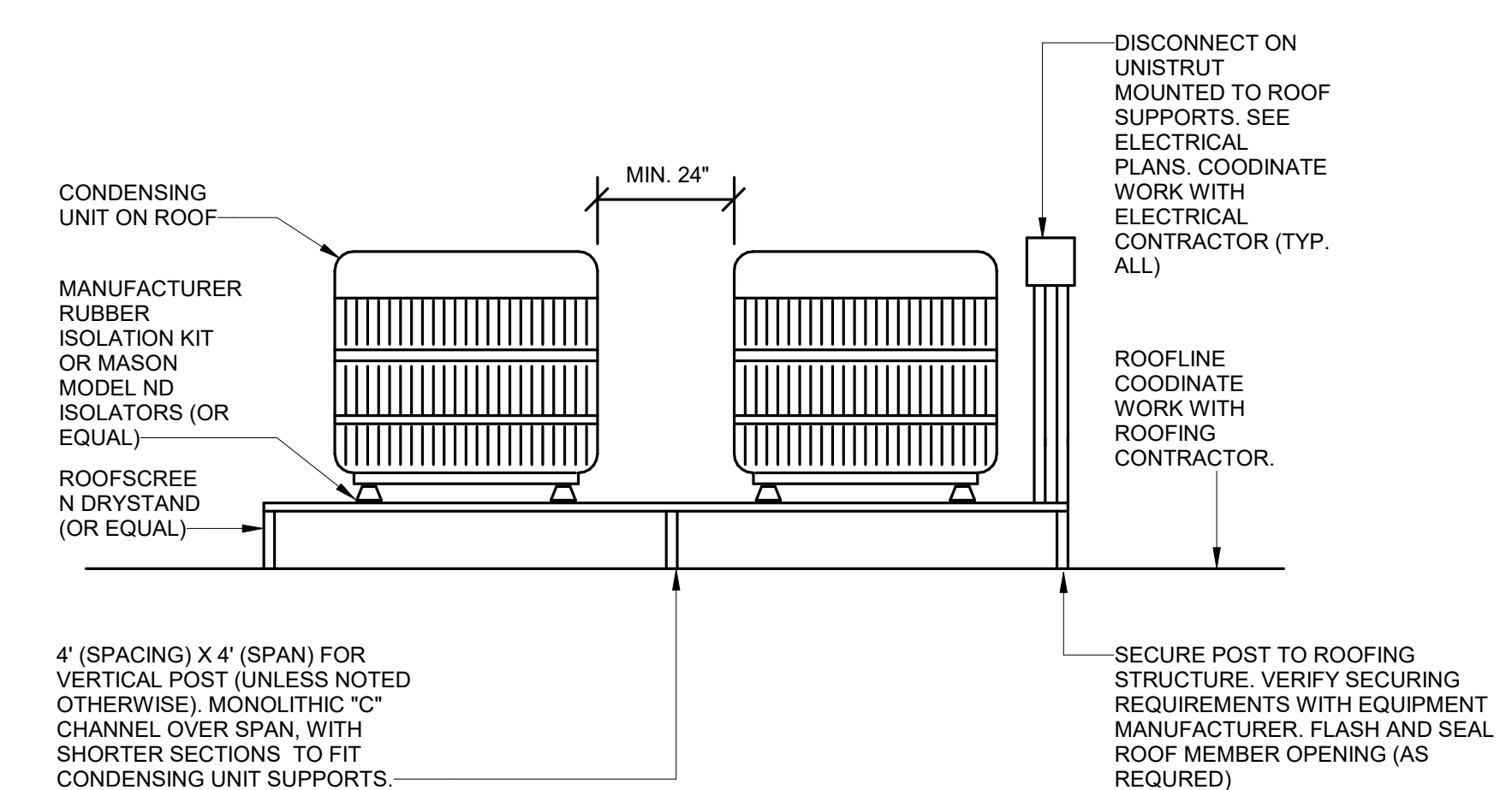
NOTE: USED FOR ALL ROOF PENETRATIONS FOR EXHAUST, FLUE, COMBUSTION AIR INTAKE OR VENTILATION OR AIR INTAKE. ALSO REFERRED TO AS RAIN PROOF CAP.

3 VENT THROUGH ROOF DETAIL
NOT TO SCALE

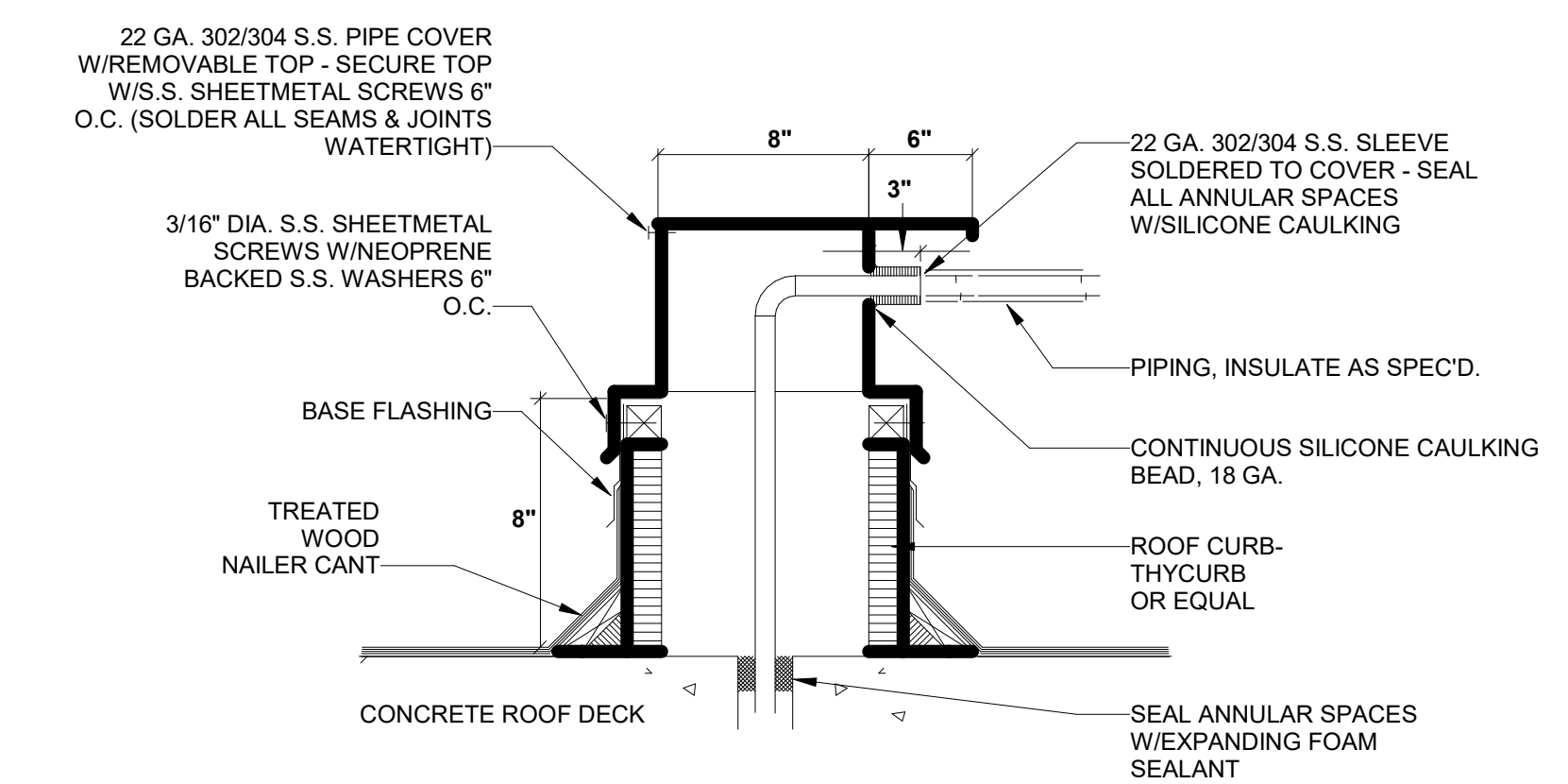


- NOTES:**
1. ALL PLENUMS AND DUCTS MUST BE SUPPORTED FROM STRUCTURE PER LOCAL CODE STANDARDS AND SMACNA STANDARDS.
 2. ALL DUCT MUST BE SEALED FOLLOWING TAPE AND MASTIC MANUFACTURER'S GUIDELINES.
 3. ALL FLEX DUCT SHALL BE INSTALLED FOLLOWING MANUFACTURER'S GUIDELINES. FLEX DUCTS SHALL BE EQUAL TO "FLEX TYPE 88" INSULATED WITH ONE AND ONE-HALF INCH (1.5") THICK FIBERGLASS, UL APPROVED WITH A FLAME SPREAD RATING OF NO MORE THAN 25, A SMOKE DEVELOPED RATING OF NO MORE THAN 50, AND WITH A MAXIMUM THERMAL CONDUCTANCE OF 0.23 AT 75 DEGREES F. ALL FLEXIBLE DUCTS SHALL BE CONNECTED TO TRUNK OR BRANCH DUCTS WITH A BANDED SCREW CLAMP AT EACH CONNECTION. FLEXIBLE DUCTS SHALL BE SUPPORTED BY ONE INCH (1") WIDE 16 GAUGE (MINIMUM) METAL STRIPS. THE MAXIMUM LENGTH OF FLEXIBLE DUCTS SHALL BE FOUR FEET (4'-0") OR LESS IF LIMITED BY LOCAL CODE. THE MINIMUM BENDING RADIUS SHALL BE ONE AND ONE-HALF (1.5) TIMES THE DUCT DIAMETER OR AS SUGGESTED BY THE DUCT MANUFACTURER.

1 CEILING DIFFUSER DETAIL
NOT TO SCALE



2 CONDENSING UNIT PLATFORM
NOT TO SCALE



3 PIPE THRU ROOF
NOT TO SCALE

REVISIONS:

08-09-22	ISSUE FOR PERMIT
A 08-09-28	IFC

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PLUMBING SCOPE OF WORK

NEW CONSTRUCTION

PROVIDE NEW UTILITIES TO THE BUILDING AND HEAD EQUIPMENT OF THE CAR WASH EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CONNECTION WITH THE CAR WASH EQUIPMENT VENDOR.

APPLICABLE CODES AND STANDARDS

ALL PLUMBING MATERIALS, INSTALLATION, TESTING, CLEANING, SUPPORTS, AND WORKMANSHIP SHALL BE IN STRICT ACCORDANCE WITH THE BELOW LISTED APPLICABLE CODES INCLUDE BUT ARE NOT LIMITED TO:

2015 INTERNATIONAL BUILDING CODE (W/ CITY OF HOUSTON AMENDMENTS)
 2015 UNIFORM PLUMBING CODE (W/ CITY OF HOUSTON AMENDMENTS)
 2015 INTERNATIONAL FIRE CODE (W/ CITY OF HOUSTON AMENDMENTS)
 2015 INTERNATIONAL ENERGY CONSERVATION CODE (W/ CITY OF HOUSTON AMENDMENTS)

PLUMBING SHEET LIST	
SHEET NUMBER	SHEET NAME
P-001	PLUMBING LEGENDS AND NOTES
P-002	PLUMBING SPECIFICATIONS
P-101	PLUMBING SITE PLAN
P-201	PLUMBING PLANS
P-202	PLUMBING PLANS
P-401	PLUMBING ENLARGED PLANS
P-501	PLUMBING RISER DIAGRAM
P-502	PLUMBING RISER DIAGRAM
P-503	PLUMBING RISER DIAGRAM
P-510	PLUMBING DETAILS
P-511	PLUMBING DETAILS
P-512	PLUMBING DETAILS
P-601	PLUMBING SCHEDULES

PLUMBING LEGEND

PIPING SYSTEMS	
SAN	SANITARY WASTE PIPING
V	SANITARY VENT PIPING
CW	COLD WATER PIPING
HW	HOT WATER PIPING
HWR	HOT WATER RETURN PIPING
GW	GREASE WASTE PIPING
G	NATURAL GAS PIPING
A	COMPRESSED AIR PIPING
ST	PRIMARY STORM DRAIN PIPING
OD	SECONDARY STORM DRAIN PIPING
AW	ACID WASTE PIPING
AV	ACID VENT PIPING

SYMBOLS	
	PIPE DOWN
	PIPE UP
	FCO / COTG
	END OF LINE CLEANOUT
	END CAP
	POINT OF CONNECTION
	KEYED NOTES
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	POINT OF DEMOLITION

UNLESS NOTED OTHERWISE, WATER AND VENT PIPING SHOWN ON PLANS ABOVE THE CEILING AND SANITARY DRAIN PIPING IS BELOW THE FLOOR

PLUMBING GENERAL NOTES

- DRAWINGS ARE DIAGRAMMATIC; CONFIRM DIMENSIONS AND LOCATIONS IN THE FIELD. IF CONFLICTING DIMENSIONS ARE SHOWN, USE LARGER DIMENSION.
- CONTRACTOR SHALL FIELD VERIFY SIZE, LOCATION, AND CONDITION OF EXISTING PIPING BEFORE PROCEEDING WITH BID AND CONSTRUCTION. ANY REUSED PIPING FOUND TO BE IN POOR CONDITION OR NOT PER CURRENT CODE REQUIREMENTS SHALL BE DOCUMENTED AND THE ENGINEER SHALL BE MADE AWARE OF THIS CONDITION IMMEDIATELY.
- ALL PLUMBING PIPING, EQUIPMENT, AND FIXTURE INSTALLATIONS SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR. ALL PLUMBING WORK SHALL BE SUPERVISED BY A LICENSED MASTER PLUMBER.
- GUARANTEE LABOR AND MATERIALS FOR 1-YEAR. WARRANTIES BEGIN UPON OWNER'S ACCEPTANCE OF SUBSTANTIAL COMPLETION OF THE INSTALLATION.
- ALL EXCEPTIONS OR SUBSTITUTIONS TAKEN TO SPECIFIED MATERIALS, FIXTURES, EQUIPMENT, OR REQUIREMENTS OF THESE DOCUMENTS SHALL BE SUBMITTED TO THE OWNER, ARCHITECT, AND ENGINEER FOR REVIEW PRIOR TO PURCHASE AND INSTALLATION.
- PROVIDE EXPANSION LOOPS IN LONG RUNS OF HOT WATER AND HOT WATER RETURN PIPING AS REQUIRED BY CODE.
- PROVIDE INSULATION KIT FOR SUPPLIES, DRAIN PIPING AND P-TRAPS FOR ALL HANDICAP ACCESSIBLE LAVATORIES AND SINKS. INSULATION KITS SHALL BE EQUAL TO TRUEBRO 103 (WHITE), WHERE PROTECTIVE SKIRT UNDER FIXTURES IS PROVIDED. INSULATION OF PIPING IS REQUIRED.
- PROVIDE ZURN #Z-1447 OR EQUAL CLEANOUT TEE IN DRAIN LINES FOR ALL COUNTER MOUNTED SINKS AND WALL MOUNTED LAVATORIES.
- REFER TO PROJECT CONTRACT DOCUMENTATION AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS AND INFORMATION.
- SEE ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION OF FIXTURES AND WALL MOUNTED DEVICES.
- PLENUMS ARE CROWDED AND NOT ALL OBSTACLES ARE INDICATED. ALLOW FOR ADDITIONAL PIPE OFFSETS, AS REQUIRED, AND WHEN NOT INDICATED ON DRAWINGS.
- PROPERLY SEAL ALL PENETRATIONS OF FLOORS, EXTERIOR WALLS, AND RATED WALLS.
- SECURE ALL PERMITS AND PROVIDE ANY REQUIRED TEMPORARY UTILITIES.
- ALL PLUMBING VENTS THRU ROOF SHALL HAVE THE MINIMUM SEPARATION OF TEN (10) FEET FROM HVAC OUTSIDE AIR INLETS, PER THE APPLICABLE CODE. COORDINATE WITH HVAC CONTRACTOR.
- ALL WORK IN OR ABOVE OCCUPIED AREAS SHALL BE AT OWNER'S CONVENIENCE AND MAY BE DURING EVENINGS OR WEEKENDS. SCHEDULE ALL SERVICE INTERRUPTIONS IN ADVANCE WITH OWNER.
- BEFORE SUBMITTING A BID, IT WILL BE NECESSARY FOR EACH CONTRACTOR WHOSE WORK IS INVOLVED TO VISIT THE SITE AND ASCERTAIN FOR HIMSELF THE CONDITIONS TO BE MET IN INSTALLING THE WORK AND MAKE PROVISIONS FOR THE CONDITIONS IN HIS FINAL PRICE. FAILURE OF THE CONTRACTOR TO COMPLY WITH THIS REQUIREMENT SHALL NOT BE CONSIDERED JUSTIFICATION FOR THE OMISSION OR FAULTY INSTALLATION OF ANY WORK COVERED BY THE CONTRACT DOCUMENTS. THE BID SHALL INCLUDE ALL THE WORK REQUIRED OR NECESSARY TO COMPLY WITH THE WORK SHOWN ON THE DRAWINGS AND IDENTIFIED IN THE SPECIFICATIONS.
- PIPING SHALL NOT BE ROUTED OVER ELECTRICAL PANELS OR TRANSFORMERS.
- PROVIDE WATER HAMMER ARRESTORS FOR ALL NEW QUICK-ACTING VALVES. SIZE IN ACCORDANCE WITH PDI STANDARDS, REFER TO DETAIL AND SIZING CHART. THE USE OF AIR CHAMBERS SHALL NOT BE ACCEPTABLE AND ARE NOT ALLOWED.
- BRANCH TAKEOFF: RUNOUT FROM HORIZONTAL PIPING SHALL BE TAKEN OFF OF THE CENTERLINE OF THE MAIN OR BRANCH PIPING AND RISE VERTICALLY OR AT AN ANGLE NOT LESS THAN 45 DEGREES FROM VERTICAL.
- THE LISTING OF PRODUCT MANUFACTURERS, MATERIALS AND METHODS ARE THE BASIS OF DESIGN AND ARE INTENDED TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER SHALL BE THE SOLE JUDGE OF QUALITY AND EQUIVALENCE OF EQUIPMENT, MATERIALS AND METHODS. WHERE SUBSTITUTED OR ALTERNATIVE EQUIPMENT IS PROPOSED ON THE PROJECT BEFORE BIDDING, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE EQUIPMENT WILL FIT THE SPACE AVAILABLE, INCLUDING ALL REQUIRED CODE AND MAINTENANCE CLEARANCES, AND TO COORDINATE ALL EQUIPMENT REQUIREMENTS WITH OTHER CONTRACTORS.

PLUMBING ABBREVIATIONS

A	COMPRESSED AIR
ADA	AMERICAN WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AV	ACID VENT
AW	ACID WASTE
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BOP	BOTTOM OF PIPE
BT	BATH TUB
BTU/H	BRITISH THERMAL UNIT PER HOUR
CFH	CUBIC FEET PER HOUR
COTG	CLEANOUT TO GRADE
CW	COLD WATER
CWFU	COLD WATER SUPPLY FIXTURE UNITS
CWS	COLD WATER SOFTEN
DFU	DRAINAGE FIXTURE UNITS
EDF	DRINKING FOUNTAIN
EWV	ELECTRIC WATER HEATER
ESP	ELEVATOR SUMP PUMP
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FS	FLOOR SINK
G	NATURAL GAS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GW	GREASE WASTE
GWH	GAS WATER HEATER
HB	HOSE BIBB
HW	HOT WATER
HW(140)	HOT WATER (140°)
HWFU	HOT WATER SUPPLY FIXTURE UNITS
HWR	HOT WATER RETURN
I.E.	INVERT ELEVATION
L	LAVATORY
MS	MOP SINK
NIC	NOT IN CONTRACT
OD	OVERFLOW STORM DRAIN
PSI	POUNDS PER SQUARE INCH PRESSURE
PRV	PRESSURE REDUCING BACKFLOW PREVENTER
RCP	RECIRCULATION PUMP
SAN	SANITARY WASTE
SH	SHOWER
SK	SINK
SQ.FT.	SQUARE FOOTAGE
ST	PRIMARY STORM DRAIN
TP	TRAP PRIMER UNIT
TMV	THERMOSTATIC MIXING VALVE
TYP	TYPICAL
U	URINAL
V	SANITARY VENT
VTR	VENT THRU ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
(N)	NEW PIPING SYSTEM
(E)	EXISTING PIPING SYSTEM
(D)	DEMOLD PIPING SYSTEM

PLUMBING SPECIFICATIONS

SECTION 22 00 00 PLUMBING COMMON WORK REQUIREMENTS

- GENERAL
1. SUBMIT PRODUCT DATA SUBMITTALS FOR EQUIPMENT AND MATERIALS SPECIFIED IN THIS SECTION.
2. THE CONTRACTOR SHALL NOT PERFORM WORK BEFORE REVIEW OF THE SUBMITTALS BY THE ENGINEER...
3. THE PLUMBING CONTRACTOR SHALL PROVIDE MATERIALS AND/OR EQUIPMENT FOR EACH AND EVERY ITEM COVERED WITHIN THE PLUMBING SPECIFICATIONS...

- QUALITY ASSURANCE
A. REFERENCE STANDARDS: APPLICABLE REQUIREMENTS OF STANDARDS AND SPECIFICATIONS REFERENCED IN DIVISION 22 SECTIONS APPLY TO THE WORK.
B. WORK SHALL COMPLY WITH RECOGNIZED STANDARDS AND CODES...
C. IT IS NOT THE INTENT TO SPECIFY MATERIALS, EQUIPMENT OR METHODS OF INSTALLATION THAT MAY BE IN CONFLICT WITH NATIONAL, FEDERAL, STATE, LOCAL OR UTILITY COMPANY CODES...

- DELIVERY, STORAGE AND HANDLING
A. DELIVER MATERIALS TO PROJECT SITE IN UNOPENED CONTAINERS BEARING MANUFACTURER'S NAME AND CORNER IDENTIFICATION.
B. STORE MATERIALS AS RECOMMENDED BY THE MANUFACTURER.

- MATERIALS AND EQUIPMENT
A. MATERIALS AND EQUIPMENT SHALL BE NEW, CONFORM TO GRADE, QUALITY AND STANDARDS SPECIFIED HEREIN. TYPE, CAPACITY AND APPLICATION SHALL BE SUITABLE AND CAPABLE OF SATISFACTORY OPERATION FOR THE PURPOSE INTENDED...

- EXAMINATION
A. EXAMINE AREAS IN WHICH WORK IS TO BE PERFORMED. REPORT TO THE CONTRACTOR ALL PREVAILING CONDITIONS THAT WILL ADVERSELY AFFECT SATISFACTORY EXECUTION OF WORK.
B. STARTING WORK AND CONTINUING OPERATIONS OF THE EXISTING CONDITIONS AND THIS CONTRACTOR SHALL THEN AT HIS EXPENSE, BE RESPONSIBLE FOR CORRECTING ALL UNSATISFACTORY AND DEFECTIVE WORK ENCOUNTERED...

- INSTALLATION-GENERAL
A. LOCATE EQUIPMENT, EQUIPMENT CONTROLS AND OTHER DEVICES, WHICH MUST BE SERVICED, OPERATED OR MAINTAINED IN FULLY ACCESSIBLE LOCATIONS.
B. PRODUCT INSTALLATION: PRODUCTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, DETAILS AND INSTRUCTIONS.
C. COORDINATE WORK WITH OTHER TRADES TO ELIMINATE ANY POSSIBLE INTERFERENCE...

- BUILDING AND SITE SERVICES
A. CONTACT UTILITY COMPANIES AND LOCAL AUTHORITIES TO ARRANGE FOR REQUIRED SEWER, WATER AND GAS SERVICES.

- PASSAGE OF EQUIPMENT
A. ESTABLISH PASSAGE CLEARANCES REQUIRED TO DELIVER, INSTALL AND ERECT PLUMBING EQUIPMENT, WHEREVER NECESSARY, PROVIDE EQUIPMENT IN SECTIONS OR KNOCKED DOWN IN ORDER TO ALLOW PASSAGE OF EQUIPMENT THROUGH OPENINGS.
B. WHERE THERE IS NOT SUFFICIENT CLEARANCE FOR PASSAGE OF PLUMBING EQUIPMENT, DELIVER, INSTALL AND PROTECT SUCH EQUIPMENT BEFORE CONFINING WALLS, FLOORS, SLABS AND STEEL WORK ARE ERECTED...

- CUTTING AND PATCHING
A. THE DIVISION 22 TRADE CONTRACTORS SHALL PROVIDE CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE WORK OF THIS SECTION.
B. RETAIN THE ORIGINAL INSTALLER OR FABRICATOR, OR AN EQUALLY RECOGNIZED, EXPERIENCED AND SPECIAL FIRM TO CUT AND PATCH EXPOSED WORK, THE REQUIREMENT MAY BE WAIVED AT THE SOLE DISCRETION OF THE ENGINEER...

- PAINTING AND FINISHING
A. FOLLOWING ENGINEER'S REVIEW OF REQUIRED CUTTING AND PATCHING, PROVIDE PAINTING AND FINISHING REQUIRED FOR INSTALLATION OF THE WORK OF THIS SECTION.
B. PROVIDE REQUIRED PAINTS, PRIMERS, STAINS, SEALERS, FILLERS, TRIM, CARPET, TILE, WOOD, EPOXY, VINYL OR RUBBER BASES, PANELING AND ADDITIONAL REQUIRED WALL, FLOOR AND CEILING FINISH MATERIALS TO MATCH ADJOINING SPACES AND FINISHES.
C. PROVIDE THE BEST QUALITY PROFESSIONAL/COMMERCIAL GRADE OF EACH TYPE OF COATING OR FINISH...

- CLEANING
A. COORDINATE AND COOPERATE WITH OTHER TRADES FOR CLEANING AND REMOVAL OF TRASH AND DEBRIS FROM THE PROJECT ON A PERIODIC BASIS OR AS DIRECTED BY THE ENGINEER.
SYSTEM START-UP
A. AFTER COMPLETION OF TESTING IN ACCORDANCE WITH REMAINING DIVISION 22 SECTIONS, START EACH SYSTEM AND MAKE FINAL ADJUSTMENTS FOR PROPER FLOW, TEMPERATURE AND QUIETNESS OF OPERATION.

- OPERATING INSTRUCTIONS
A. REQUEST A DATE FROM THE OWNER IN WRITING WITH A COPY TO THE ENGINEER, WHEN THE INSTRUCTION PERIOD SHALL BEGIN. TESTING, BALANCING AND ADJUSTING SHALL BE COMPLETE AND ACCEPTABLE TO THE ENGINEER PRIOR TO INSTRUCTION OF THE OWNER'S REPRESENTATIVE.
PROJECT CLOSEOUT
A. SUBMIT NOTIFICATION OF SUBSTANTIAL COMPLETION TO THE ENGINEER FOLLOWING COMPLETION OF THE FOLLOWING TASKS:

- INSTALLATION OF ALL REQUIRED MATERIAL, EQUIPMENT AND SYSTEMS AS DOCUMENTED IN THE CONTRACT DOCUMENTS
C. COMPLETION OF ALL REQUIRED SYSTEM TESTING AND BALANCING
D. COMPLETION OF CUTTING, PATCHING AND FINISHING OF SURFACES REQUIRING SUCH TREATMENTS
E. COMPLETION OF CLEANING OF SITE
F. COMPLETION OF SYSTEM START-UP
G. PROVISION OF OPERATING AND MAINTENANCE INSTRUCTIONS
H. SUBMISSION OF ALL REQUIRED CERTIFICATIONS
I. SUBMISSION OF PROJECT RECORD DRAWINGS
J. SUBMISSION OF WARRANTY DOCUMENTS FOR COMPLETION OF INITIAL STARTING DATE BY ENGINEER

- SECURING EXTERIOR EQUIPMENT
A. EXTERIOR EQUIPMENT SHALL BE SECURELY FASTENED IN PLACE. SUPPORTS SHALL BE DESIGNED AND CONSTRUCTED TO SUSTAIN VERTICAL AND HORIZONTAL LOADS WITHIN THE STRESS LIMITATIONS AND WIND SPEEDS SPECIFIED IN THE APPLICABLE BUILDING CODE

- 22 05 23 GENERAL DUTY VALVES FOR PLUMBING PIPING
GENERAL REQUIREMENTS FOR VALVES
A. PLUMBING VALVE APPLICATIONS SPECIFIED IN THIS SECTION ARE LIMITED TO NPS 24 (DN 600).
B. SOURCE LIMITATIONS FOR VALVES: OBTAIN EACH TYPE OF VALVE FROM SINGLE SOURCE FROM SINGLE MANUFACTURER.
C. IN COMPLIANCE WITH ASME B1.20.1 FOR THREADS FOR THREADED END VALVES, B16.1 FOR FLANGES ON IRON VALVES, B16.10 AND ASME B16.34 FOR FERROUS VALVE DIMENSIONS AND MATERIALS, B16.18 FOR SOLDER JOINT, B31.9 FOR BUILDING SERVICES PIPING VALVES...

- BALL VALVES
A. BRONZE BALL VALVES, TWO-PIECE WITH FULL PORT, BRONZE BODY WITH STAINLESS STEEL TRIM AND BALL, THREADED OR SOLDERED, 600 PSIG CWP RATING, PTFE SEATS, SHALL COMPLY WITH MSS SP-110. VALVES WITH INTEGRAL PRESS-CONNECT ENDS SHALL BE VIEGA ONLY.
SWING CHECK VALVES
A. BRONZE SWING CHECK VALVE, WITH NONMETALLIC DISC, CLASS 125, HORIZONTAL FLOW, THREADED OR SOLDERED, 200 PSIG CWP RATING, PTFE DISC, SHALL COMPLY WITH MSS SP-80 TYPE 4.

- VALVE INSTALLATION
A. INSTALL VALVES WITH UNIONS OR FLANGES AT EACH PIECE OF EQUIPMENT ARRANGED TO ALLOW SERVICE, MAINTENANCE, AND EQUIPMENT REMOVAL WITHOUT SYSTEM SHUTDOWN.
B. LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.
C. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.
D. INSTALL VALVES IN POSITION TO ALLOW FULL STEM MOVEMENT.
E. INSTALL SWING CHECK VALVES FOR PROPER DIRECTION OF FLOW IN HORIZONTAL POSITION WITH HINGE PIN LEVEL.
F. INSTALL CHAINWHEELS ON OPERATORS FOR GATE VALVES NPS 4 AND LARGER, AND MORE THAN 96 INCHES ABOVE THE FLOOR. EXTEND CHAINS TO 60 INCHES ABOVE FINISHED FLOOR.

- GENERAL REQUIREMENTS FOR VALVE APPLICATIONS
A. IF VALVES WITH SPECIFIED CWP RATINGS ARE UNAVAILABLE, THE SAME TYPES OF VALVES WITH HIGHER CWP RATINGS MAY BE SUBSTITUTED.
B. USE GATE VALVES FOR SHUTOFF SERVICE ONLY.
C. END CONNECTIONS
1. FOR PIPING/TUBING, NPS 2 AND SMALLER: THREADED OR SOLDERED.
2. FOR PIPING/TUBING, NPS 2-1/2 AND LARGER: FLANGED.

- 22 05 29 HANGERS AND SUPPORTS
PERFORMANCE REQUIREMENTS
A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.
B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY, LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASC/SEI 7.
1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND COMPONENTS.

- METAL PIPE HANGERS AND SUPPORTS
A. PIPE HANGERS AND SUPPORTS
1. CARBON STEEL AND STAINLESS-STEEL PIPE HANGERS AND SUPPORTS SHALL COMPLY WITH MSS SP-58, TYPES 1 THROUGH 58, FACTORY-FABRICATED COMPONENTS, COPPER HANGERS SHALL COMPLY WITH MSS SP-58, TYPES 1 THROUGH 50, COPPER-COATED-STEEL, FACTORY-FABRICATED COMPONENTS.
2. GALVANIZED METALLIC COATINGS SHALL BE PRE-GALVANIZED OR HOT DIPPEd.
3. NON-METALLIC COATINGS SHALL BE PLASTIC COATING, JACKET OR LINER.
4. PADDED HANGERS SHALL HAVE FIBERGLASS OR OTHER PIPE INSULATION PAD OR CUSHION.
5. HANGER RODS SHALL BE CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF CARBON STEEL.
TRAPEZE PIPE HANGERS
1. MSS SP-69, TYPE 59, SHOP-OR FIELD-FABRICATED PIPE-SUPPORT ASSEMBLY MADE FROM STRUCTURAL CARBON-STEEL SHAPES WITH MSS SP-58 CARBON-STEEL HANGER RODS, NUTS, SADDLES, AND U-BOLTS.

- FASTENER SYSTEMS
A. POWDER-ACTUATED FASTENERS: THREADED-STEEL STUD, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE WITH PULL-OUT, TENSION, AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.
B. MECHANICAL-EXPANSION ANCHORS: INSERT-WEDGE-TYPE, ZINC-COATED STEEL ANCHORS, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE; WITH PULL-OUT, TENSION, AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.

- HANGER AND SUPPORT INSTALLATION
A. METAL PIPE-HANGER INSTALLATION: COMPLY WITH MSS SP-69 AND MSS SP-89. INSTALL HANGERS, SUPPORTS, CLAMPS, AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORTING PIPING FROM THE BUILDING STRUCTURE.
B. METAL TRAPEZE PIPE-HANGER INSTALLATION: COMPLY WITH MSS SP-69 AND MSS SP-89. ARRANGE FOR GROUPING OF PARALLEL RUNS OF HORIZONTAL PIPING, AND SUPPORT TOGETHER ON FIELD-FABRICATED TRAPEZE PIPE HANGERS.
C. INSTALL HANGERS AND SUPPORTS COMPLETE WITH NECESSARY ATTACHMENTS, INSERTS, BOLTS, RODS, NUTS, WASHERS, AND OTHER ACCESSORIES.
D. INSTALL HANGERS AND SUPPORTS TO ALLOW CONTROLLED THERMAL AND SEISMIC MOVEMENT OF PIPING SYSTEMS, TO PERMIT FREEDOM OF MOVEMENT BETWEEN PIPE ANCHORS, AND TO FACILITATE ACTION OF EXPANSION JOINTS, EXPANSION LOOPS, EXPANSION BENDS, AND SIMILAR UNITS.
E. INSTALL LATERAL BRACING WITH PIPE HANGERS AND SUPPORTS TO PREVENT SWAYING.
F. PIPE SLOPES: INSTALL HANGERS AND SUPPORTS TO PROVIDE INDICATED PIPE SLOPES AND TO NOT EXCEED MAXIMUM PIPE DEFLECTIONS ALLOWED BY ASME B31.9 FOR BUILDING SERVICES PIPING.
G. USE HANGERS AND SUPPORTS WITH GALVANIZED METALLIC COATINGS FOR PIPING AND EQUIPMENT THAT WILL NOT HAVE FIELD-APPLIED FINISH.
H. USE NONMETALLIC COATINGS ON ATTACHMENTS FOR ELECTROLYTIC PROTECTION WHERE ATTACHMENTS ARE IN DIRECT CONTACT WITH COPPER TUBING.
I. USE CARBON-STEEL PIPE HANGERS AND SUPPORTS AND METAL TRAPEZE PIPE HANGERS AND ATTACHMENTS FOR GENERAL SERVICE APPLICATIONS.
J. USE STAINLESS-STEEL PIPE HANGERS AND STAINLESS-STEEL ATTACHMENTS FOR HOSTILE ENVIRONMENT APPLICATIONS.
K. USE COPPER-PLATED PIPE HANGERS AND COPPER ATTACHMENTS FOR COPPER PIPING AND TREATMENTS.
L. USE PADDED HANGERS FOR PIPING THAT IS SUBJECT TO SCRATCHING.
M. USE THERMAL-HANGER SHIELD INSERTS FOR INSULATED PIPING AND TUBING.
N. ISOLATE ALL WATER PIPING FROM DIRECT CONTACT WITH STRUCTURAL MEMBERS (STUDS, JOISTS, BEAMS, ETC.) TO PREVENT THE TRANSMISSION OF SOUND.
O. ISOLATE ALL WATER PIPING FROM DIRECT CONTACT WITH STRUCTURAL MEMBERS (STUDS, JOISTS, BEAMS, ETC.) TO PREVENT THE TRANSMISSION OF SOUND.
P. NO WOOD SILLS ALLOWED.
Q. ROOF SUPPORTS COMPATIBLE WITH EXISTING ROOF SYSTEM SHALL BE PORTABLE PIPE HANGERS OR APPROVED EQUAL.

- EQUIPMENT SUPPORT:
A. PROVIDE 4" REINFORCED CONCRETE HOUSEKEEPING PAD WITH CHAMFERED EDGES FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT.
B. FLASH AND SEAL EQUIPMENT, PIPE STACKS, AND ROOF PENETRATIONS.

- 22 05 48 VIBRATION ISOLATION
A. INLINE CIRCULATING PUMP: SUSPEND OR SUPPORT WITH RUBBER OR SPRING ISOLATORS.

- 22 05 53 PLUMBING COMPONENTS IDENTIFICATION
EQUIPMENT:
PERMANENT LABEL (STENCIL, METAL TAG) WITH UNIT TAG OR NAME AND AREA OR SPACE SERVED.
A. MATERIAL: ANODIZED ALUMINUM (0.032 INCH THICK), BLACK LETTERS, WHITE BACKGROUND.
B. LABEL SIZE SHALL VARY FOR REQUIRE CONTENT, MINIMUM SIZE 2-1/2 X 3/4 INCH
C. MINIMUM LETTER SIZE: 1/4 INCH (6.4 MM) FOR NAME OF UNITS IF VIEWING DISTANCE IS LESS THAN 24 INCHES, 1/2 INCH FOR VIEWING DISTANCES UP TO 72 INCHES, AND PROPORTIONATELY LARGER LETTERING FOR GREATER VIEWING DISTANCES. INCLUDE SECONDARY LETTERING TWO-THIRDS TO THREE-QUARTERS THE SIZE OF PRINCIPAL LETTERING.
D. FASTENERS: STAINLESS STEEL RIVETS

- PIPING:
GENERAL REQUIREMENTS FOR MANUFACTURED PIPE LABELS:
A. PREPRINTED, COLOR-CODED, WITH LETTERING INDICATING SERVICE, AND SHOWING FLOW DIRECTION.
B. SELF-ADHESIVE PIPE LABELS: PRINTED PLASTIC WITH CONTACT-TYPE, PERMANENT-ADHESIVE BACKING.
C. PIPE LABEL CONTENTS: INCLUDE IDENTIFICATION OF PIPING SERVICE USING SAME DESIGNATIONS OR ABBREVIATIONS AS USED ON DRAWINGS; ALSO INCLUDE PIPE SIZE AND AN ARROW INDICATING FLOW DIRECTION.
1. LETTERING SIZE: SIZE LETTERS ACCORDING TO ASME A13.1 FOR PIPING, AT LEAST 1/2 INCH FOR VIEWING DISTANCES UP TO 72 INCHES AND PROPORTIONATELY LARGER LETTERING FOR GREATER VIEWING DISTANCES.

- VALVE TAGS:
A. TAGS: STAMPED OR ENGRAVED WITH 1/4 INCH LETTERING FOR PIPING SYSTEM AND 1/2 INCH NUMBERS
B. MATERIAL: BRASS 0.032 INCH MINIMUM THICKNESS AND HAVING PREDRILLED OR STAMPED HOLES FOR ATTACHMENT HARDWARE.
C. FASTENERS: BRASS WIRE-LINK OR BEADED CHAIN OR S-HOOK

- VALVE TAG CHART:
A. FOR EACH PIPING SYSTEM, ON 8-1/2-BY-11-INCH (A4) BOND PAPER, TABULATE VALVE NUMBER, PIPING SYSTEM, SYSTEM ABBREVIATION (AS SHOWN ON VALVE TAG), LOCATION OF VALVE (ROOM OR SPACE), NORMAL-OPERATING POSITION (OPEN, CLOSED, OR MODULATING), AND VARIATIONS FOR IDENTIFICATION. MARK VALVES FOR EMERGENCY SHUTOFF AND SIMILAR SPECIAL USES.
1. VALVE TAG SCHEDULE SHALL BE INCLUDED IN OPERATION AND MAINTENANCE DATA.

- 22 07 19 PIPING INSULATION
ALL INSULATION MUST HAVE FLAME SPREAD LESS THAN 25 AND SMOKE DEVELOPED LESS THAN 50 AS PER ASTM E84, NFPA 255, AND UL 273.
A. PROVIDE GALVANIZED SHEET METAL SHIELDS AT ALL PIPE HANGERS FOR PIPES 1/2" OR LARGER, FOR PIPE 4" AND LARGER, PROVIDE HIGH-DENSITY INSULATION (CALCIUM SILICATE) INSERTS AT HANGERS, OTHER AREAS SUBJECT TO FREEZING - 1" FIBERGLASS.
B. DOMESTIC COLD WATER IN EXTERIOR WALLS, ATTICS SPACE ABOVE BUILDING INSULATION, OR OTHER AREAS SUBJECT TO FREEZING - 1" FIBERGLASS.
C. DOMESTIC HOT WATER (105°F-140°F) FOR PIPE SIZES 1 1/2" OR LESS, PROVIDE 1" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET, 1 1/2" AND LARGER, PROVIDE 1 1/2" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET (RE: IECC 2018 - TABLE C403.11.3 MINIMUM PIPE INSULATION THICKNESS)
D. INSULATE ALL EXPOSED DRAIN, WATER SUPPLY VALVES AND PIPING BELOW LAVATORIES AND SINKS WITH CLOSED CELL INSULATING KIT AS MANUFACTURED BY TRUEBRO LAVGUARD2 E-Z SERIES OR EQUAL BY MCGUIRE.
E. FLOOR DRAINS RECEIVING CONDENSATE FROM HVAC UNITS OR ICE MACHINES SHALL BE INSULATED WITH 1" FIBERGLASS A MINIMUM OF 5-FEET DOWNSTREAM OF DRAIN.

- 22 10 00 PLUMBING PIPING
DOMESTIC HOT & COLD WATER PIPING-
SHALL MEET THE REQUIREMENTS OF NSF/ANSI 61 FOR HEALTH EFFECTS IN POTABLE WATER AND NSFANSI 372 FOR LEAD FREE REQUIREMENTS IN THE "REDUCTION OF LEAD IN DRINKING WATER ACT".

- A. HARD COPPER TUBE: ASTM B88 TYPE "L" COPPER TUBING WITH ASME B16.22 WROUGHT COPPER AND ASME B16.18 CAST COPPER ALLOY (BRONZE) SOLDER JOINT FITTINGS WITH LEAD FREE SOLDER OR VIEGA PROGRESS PRESS-CONNECT FITTINGS 1/2" TO 4". WHERE VIEGA PROGRESS FITTINGS ARE USED, INSTALLERS SHALL BE CREDENTIALIAED BY VIEGA (A FREE SERVICE), THE CONNECTIONS SHALL BE MARKED FOR FULL INSERTION DEPTH, THE VIEGA TWO-STEP PRESSURE TESTING SHALL BE CONDUCTED TO ENSURE DETECTION OF UNPRESSED FITTINGS AND THERE SHALL BE NO MIXING OF MANUFACTURERS. PRESS MANUFACTURERS ALL USE VARIOUS TECHNOLOGY AT SAME POINT AND HAVE DIFFERENT INSTRUCTIONS. THE APPROVED MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE STRICTLY ADHERED TO. IF VALVES WITH PRESS-CONNECT ENDS ARE USED, THE VALVES SHALL BE VIEGA IN ORDER TO ENSURE UNIFORM PRESS TECHNOLOGY THROUGHOUT THE SYSTEM.

SYSTEM SHALL BE DRAINABLE. GROOVED PIPING MATERIALS MAY BE USED WITH ENGINEER APPROVAL.

TESTING: UPON COMPLETION OF CONSTRUCTION, ALL DOMESTIC WATER PIPING SHALL BE THOROUGHLY FLUSHED AND STERILIZED. SUBMIT CERTIFICATES OF TESTING FOR ENGINEER REVIEW.

- WASTE AND VENT PIPING -
A. BELOW SLAB: DRAINAGE PIPING BELOW SLAB SHALL BE SCHEDULE 40 PVC WITH DWV FITTINGS AND CLAMPS. TRANSITIONS BETWEEN UNDER SLAB PVC AND ABOVE SLAB CAST IRON SHALL BE AS DETAILED ON PLANS.
B. ABOVE SLAB: ASTM A888 NO-HUB CAST IRON PIPE AND FITTINGS, WITH ASTM C1277 STANDARD DUTY CLAMPS AND ASTM C384 GASKETS;

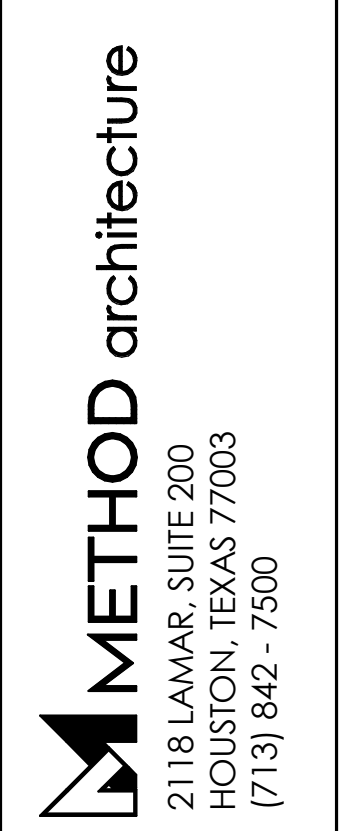
NOTE: PLASTIC PIPING OF ANY TYPE MAY NOT BE USED FOR ANY PLUMBING PIPING SYSTEM WHEN THE PIPING IS ROUTED WITHIN A CEILING PLENUM USED AS A RETURN AIR PLENUM.

MAKE CONNECTIONS BETWEEN DISSIMILAR PIPING MATERIALS WITH ADAPTORS MANUFACTURED FOR THE APPLICABLE TYPE OF TRANSITION.

PROVIDE ASSE 1079 DIELECTRIC ISOLATION DEVICE (DIELECTRIC UNION OR COUPLING) WHERE COPPER LINES CONNECT TO FERROUS LINES OR EQUIPMENT.

ALL PIPING PENETRATIONS THROUGH FLOORS SHALL BE SEALED WITH UL LISTED FIRESTOP.

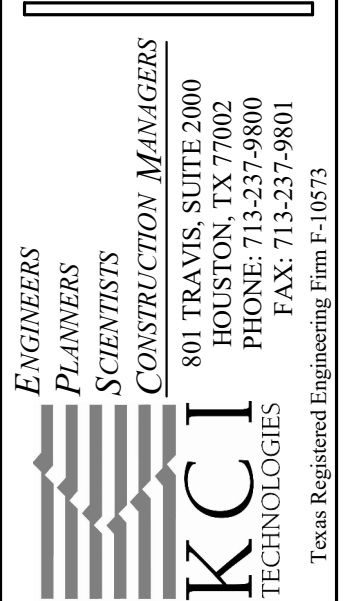
- 22 40 00 PLUMBING FIXTURES
A. REFER TO PLUMBING CONSTRUCTION DRAWINGS FOR "PLUMBING FIXTURE SCHEDULE."
B. FIXTURES SHALL BE CERTIFIED TO MEET THE WATER SAVING PERFORMANCE STANDARDS OF TEXAS CIVIL STATUTES SECTION 372.002 AND SHALL BE LISTED WITH THE STATE AS COMPLYING WITH SUCH. ALL FIXTURES SHALL COMPLY WITH THE MORE RESTRICTIVE OF ANSI OR THE FOLLOWING (WHEN TESTED PER ANSI TESTING PROCEDURES):
1. MAXIMUM FLOW FROM SINK OR LAVATORY FAUCET OR FAUCET AERATOR SHALL BE 2.20 GALLONS PER MINUTE (GPM) AT A PRESSURE OF 60 PSI.
2. MAXIMUM FLOW FROM A SHOWER HEAD SHALL BE 2.75 GPM AT A PRESSURE OF 80 PSI;
3. MAXIMUM VOLUME OF WATER PER FLUSH FROM A URINAL AND ASSOCIATED FLUSH VALVE SHALL NOT EXCEED 0.5 GALLON;
4. MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED 1.28 GALLONS.
C. FIXTURES SHALL COMPLY WITH REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT, PUBLIC LAW 101-336 AND WITH STATE OF TEXAS CIVIL STATUTES ARTICLES 7, 601B.
1. FLUSH CONTROLS SHALL BE NO MORE THAN 44" ABOVE FLOOR AND ON THE WIDE SIDE OF STALLS.
2. URINAL RIMS SHALL NOT EXCEED 17" ABOVE FINISHED FLOOR; FLUSH CONTROLS SHALL BE NO MORE THAN 44" ABOVE FLOOR.
3. EXPOSED HOT WATER AND DRAIN PIPES SHALL BE CONFIGURED TO PROTECT AGAINST CONTACT AND SHALL BE INSULATED WITH PREFABRICATED COVERS BY TRUEBRO OR EQUAL.
4. LAVATORIES SHALL BE MINIMUM 17" FRONT TO BACK AND SHALL ALLOW MINIMUM 27" HIGH KNEE CLEARANCE.
5. DRINKING FOUNTAIN SPOUTS SHALL BE NO HIGHER THAN 36"; FLOW SHALL BE PARALLEL TO UNIT FRONT AND ARC AT LEAST 4" HIGH.



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Table with 2 columns: REVISIONS, ISSUE FOR PERMIT. Includes revision numbers 105-95-22 and 105-95-23.

Table with 2 columns: ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS. Includes KCI TECHNOLOGIES.



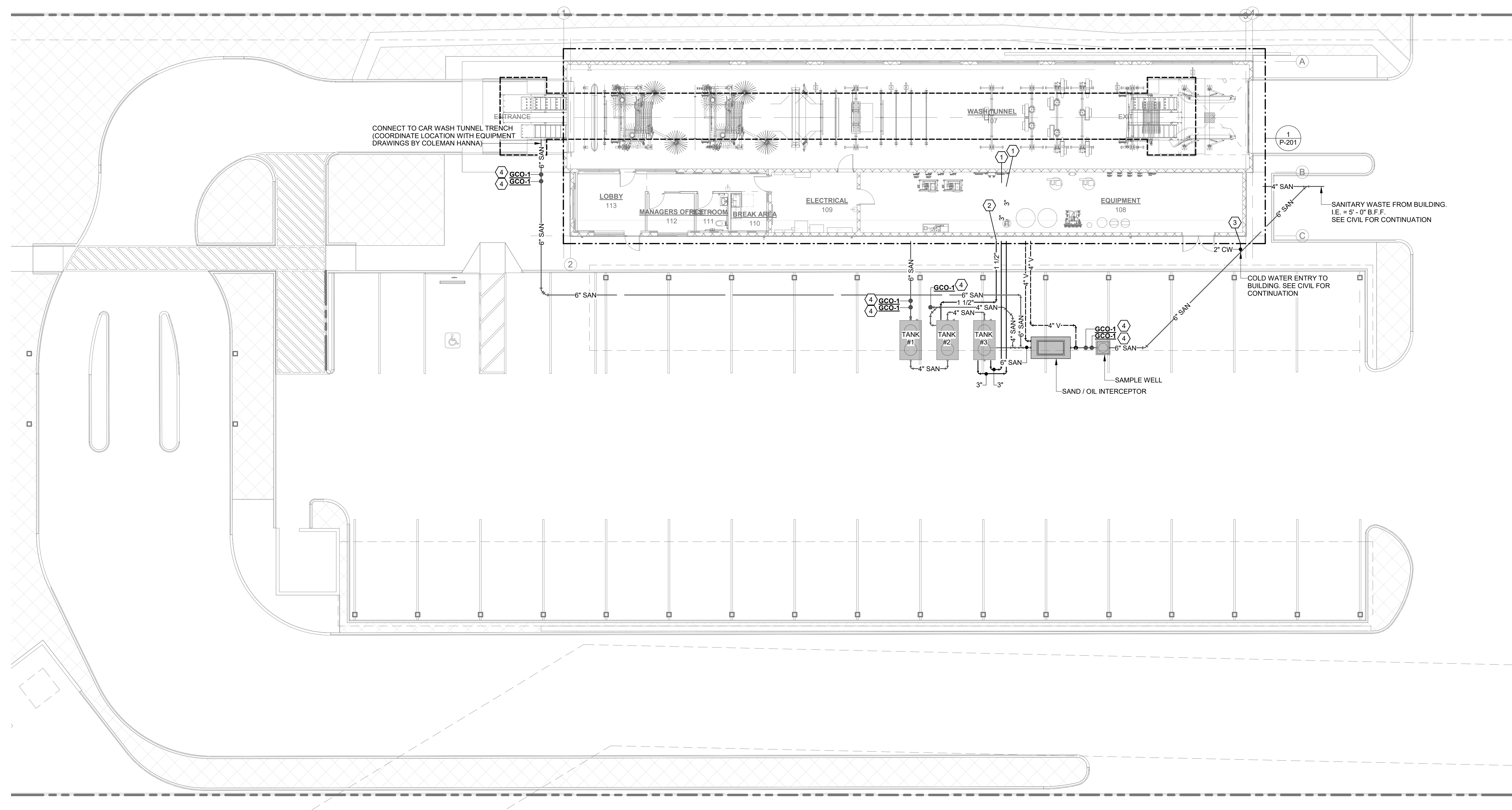
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
KCI TECHNOLOGIES
801 TRAVIS SUITE 2000 HOUSTON, TX 77002 PHONE: 713-237-9800 FAX: 713-237-9801 Texas Registered Engineering Firm F-10573

SUDS DELUXE CAR WASH
PM: CFC DE: JPC
PROJECT: 792208473
SHEET: P-002 PLUMBING SPECIFICATIONS

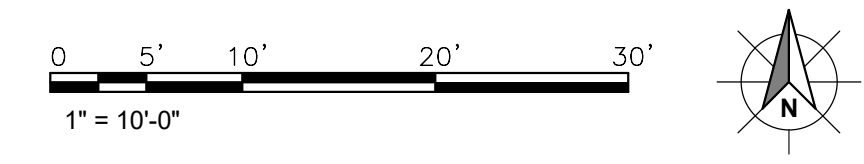
RECLAIM SYSTEM NOTE:
 CONTRACTOR SHALL REFER TO COLEMAN HANNA CARWASH SYSTEM DRAWINGS FOR EXACT POINT OF CONNECTIONS FOR THE RECLAIM PIPING AND SIZING FROM HEAD END EQUIPMENT TO THE EQUIPMENT IN THE CAR WASH TUNNEL.

ALL SLAB PENETRATION SHALL BE COORDINATED PRIOR TO ANY UNDERGROUND PIPING IS INSTALLED.

KEYED NOTES	
1	3" SCHEDULE 80 SUCTION LINES UP TO RECLAIM UNIT. COORDINATE WITH EQUIPMENT VENDOR LAYOUT THE EXACT LOCATIONS
2	1 1/2" SCHEDULE 80 OZONE RETURN LINES UP TO RECLAIM UNIT. COORDINATE WITH EQUIPMENT VENDOR LAYOUT THE EXACT LOCATION.
3	2" COLD WATER ENTRY INTO THE BUILDING
4	4" SANITARY WASTE UP TO GRADE CLEANOUT



1 PLUMBING SITE PLAN
 1" = 10'-0"



REVISIONS:

08-30-22	ISSUE FOR PERMIT
A	05-05-23 IFC

ENGINEERS
 PLANNERS
 SCIENTISTS
 CONSTRUCTION MANAGERS

KCI
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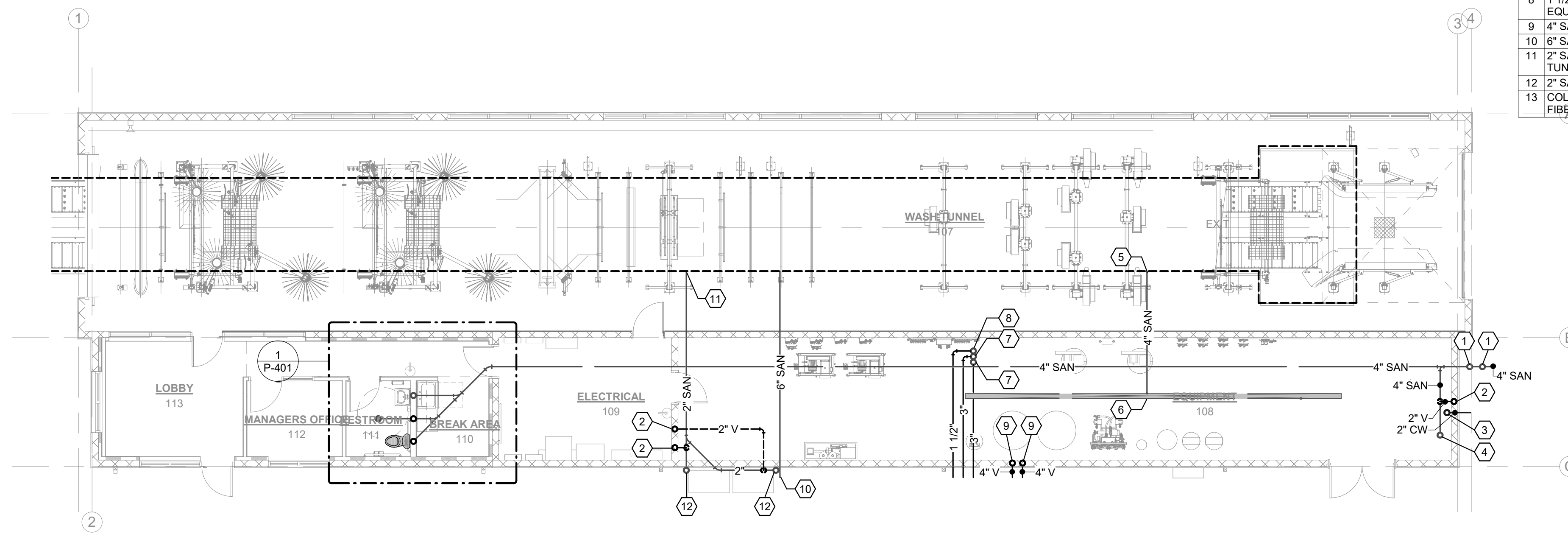
SUDS DELUXE CAR WASH

PM: CFC DE: JPC
 PROJECT:
 792208473

SHEET:
P-101
 PLUMBING SITE
 PLAN

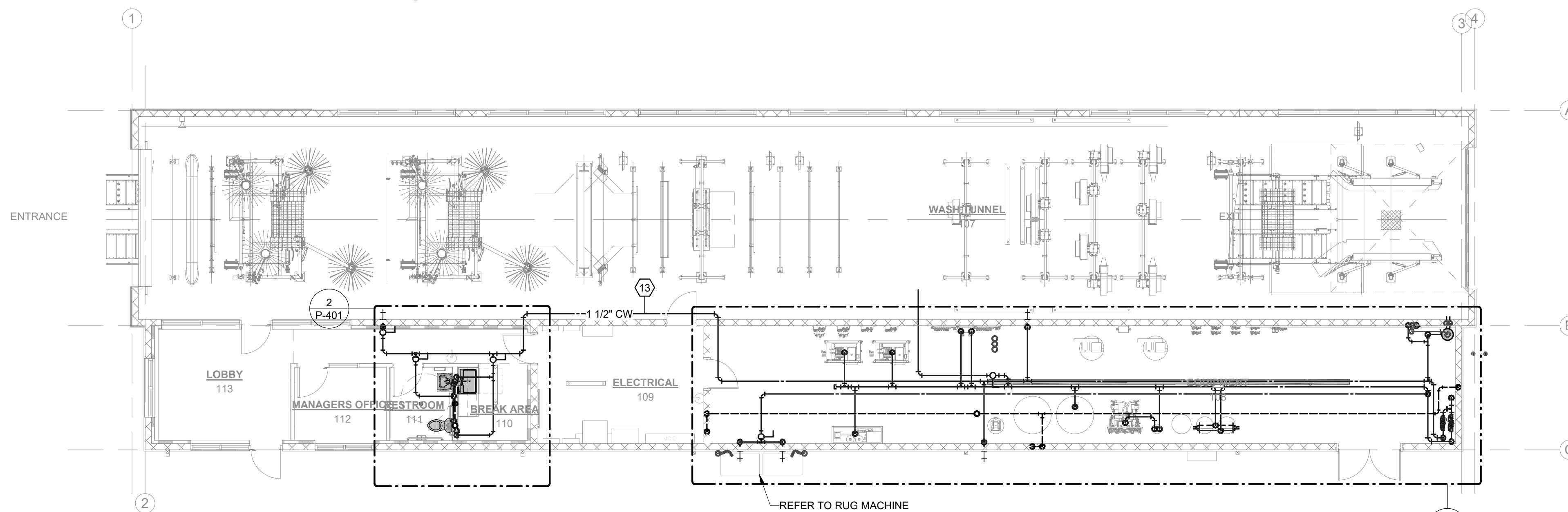
METHOD architecture

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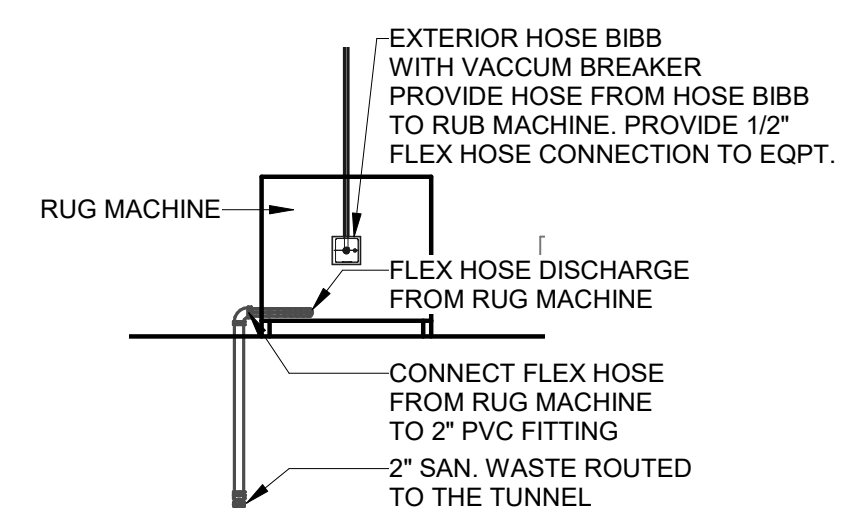


KEYED NOTES	
1	4" SANITARY WASTE UP TO GRADE CLEANOUT
2	2" SANITARY VENT UP
3	2" COLD WATER ENTRY INTO THE BUILDING
4	4" SANITARY WASTE UP TO FLOOR DRAIN
5	4" SANITARY WASTE CONNECTION TO EQUIPMENT ROOM TRENCH DRAIN. ROUTE LINE FROM DRAIN TO THE CAR WASH TUNNEL TRENCH
6	4" SANITARY WASTE UP TO TRENCH DRAIN
7	3" SCHEDULE 80 SUCTION LINES UP TO RECLAIM UNIT. COORDINATE WITH EQUIPMENT VENDOR LAYOUT THE EXACT LOCATIONS
8	1 1/2" SCHEDULE 80 OZONE RETURN LINES UP TO RECLAIM UNIT. COORDINATE WITH EQUIPMENT VENDOR LAYOUT THE EXACT LOCATION.
9	4" SANITARY VENT UP
10	6" SANITARY WASTE FROM CAR WASH TUNNEL TRENCH TO RECLAIM SYSTEM
11	2" SANITARY WASTE FROM EXTERIOR RUG MACHINES CONNECTED TO THE CAR WASH TUNNEL TRENCH
12	2" SANITARY WASTE UP TO EXTERIOR RUG MACHINE.
13	COLD WATER ROUTED IN CAR WASH TUNNEL SHALL BE INSULATED WITH 1 1/2" FIBERGLASS INSULATION. REFER TO PLUMBING SPECIFICATIONS.

1 PLUMBING UNDERFLOOR PLAN
1/8" = 1'-0"



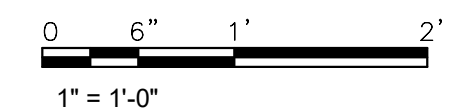
2 PLUMBING PLAN
1/8" = 1'-0"

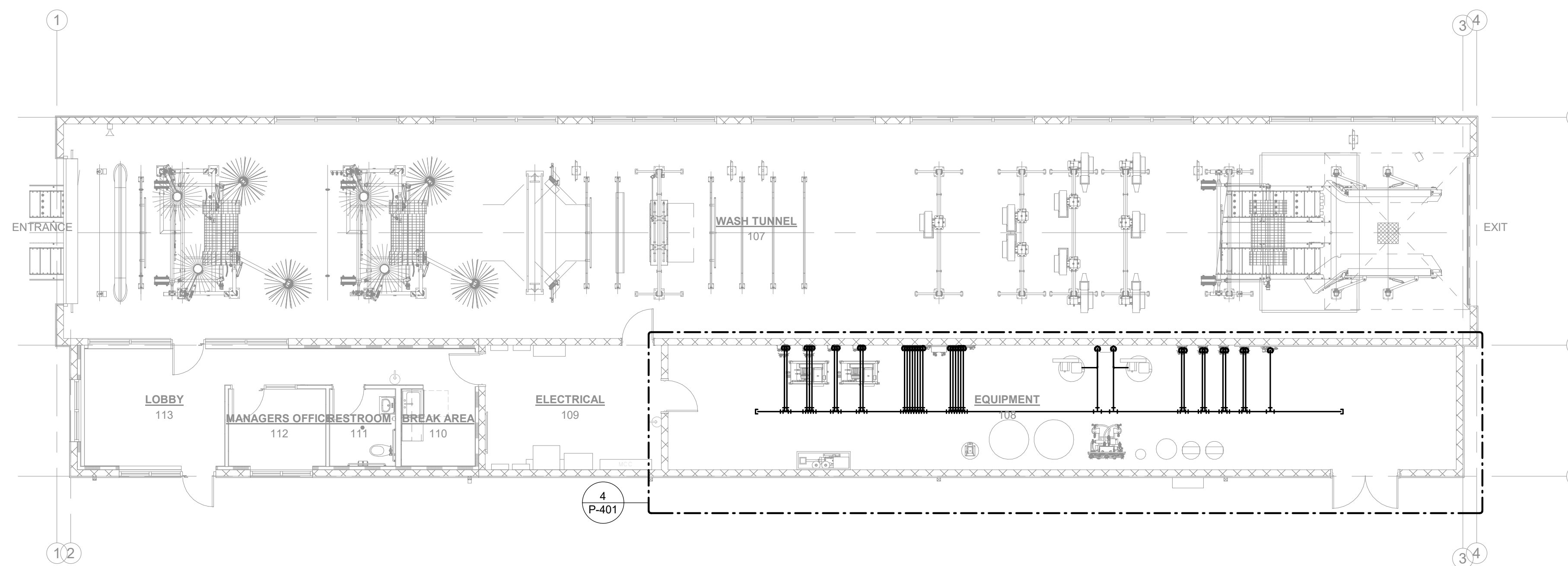


3 RUG MACHINE DETAIL
NOT TO SCALE

RECLAIM SYSTEM NOTE:
CONTRACTOR SHALL REFER TO COLEMAN HANNA CARWASH SYSTEM DRAWINGS FOR EXACT POINT OF CONNECTIONS FOR THE RECLAIM PIPING AND SIZING FROM HEAD END EQUIPMENT TO THE EQUIPMENT IN THE CAR WASH TUNNEL.

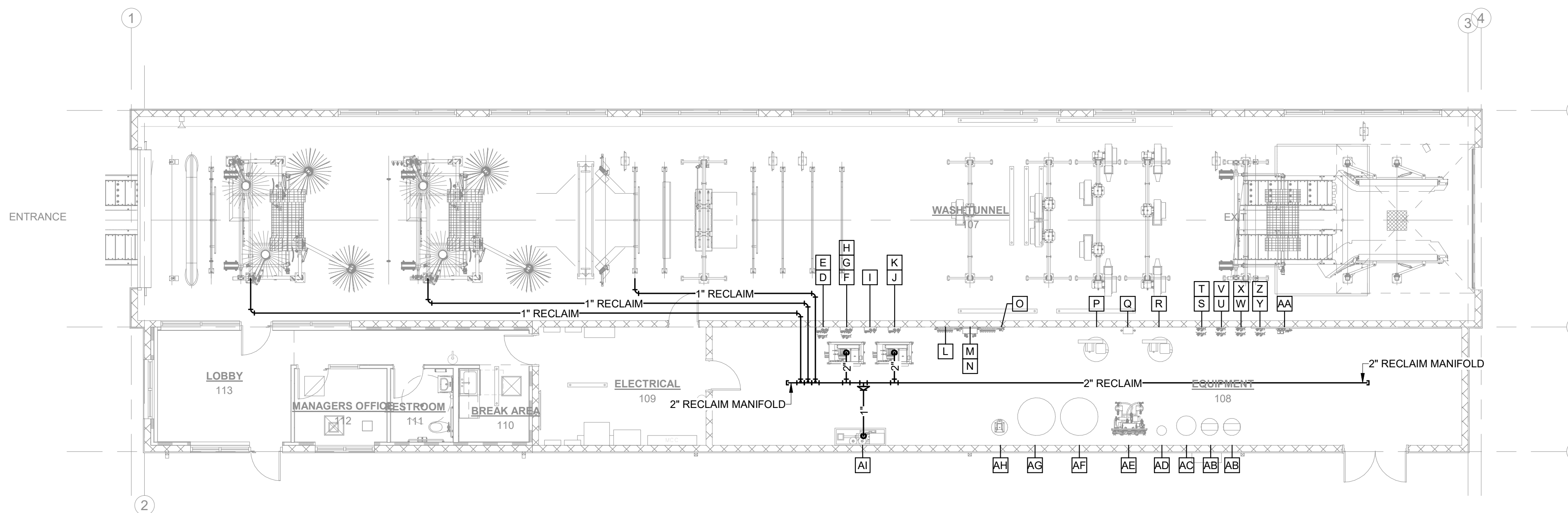
ALL SLAB PENETRATION SHALL BE COORDINATED PRIOR TO ANY UNDERGROUND PIPING IS INSTALLED.





1 PLUMBING COMPRESSED AIR PLAN
1/8" = 1'-0"

COMPRESSED AIR SYSTEM NOTE:
CONTRACTOR SHALL REFER TO COLEMAN HANNA CARWASH SYSTEM DRAWINGS FOR EXACT POINT OF CONNECTIONS FOR THE COMPRESSED AIR PIPING AND SIZING FROM HEAD END EQUIPMENT TO THE EQUIPMENT IN THE CAR WASH TUNNEL.



2 PLUMBING RECLAIM WATER PLAN
1/8" = 1'-0"

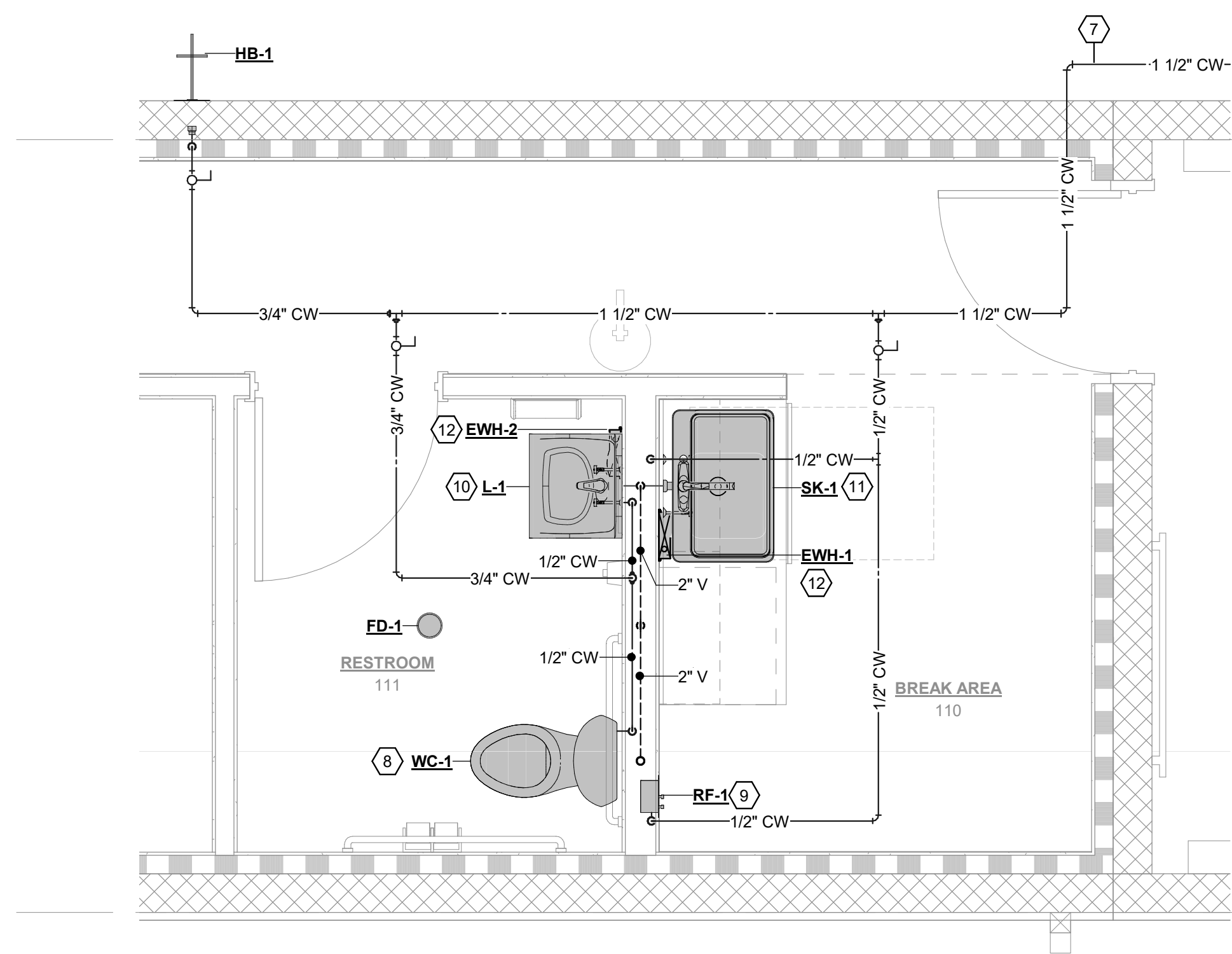
MARK	EQUIPMENT LIST
A	BALLAST PANEL
B	V5 TUNNEL CONTROLLER
C	MCC PANEL
D	WIZARD ARCH AIR RESTRICT PANEL
E	TOP BRUSH AIR RESTRICT PANEL #1
F	HYDRABLAST AIR RESTRICT PANEL
G	TOP BRUSH AIR RESTRICT PANEL #2
H	DUAL HIGH PRESSURE PUMP STAND
I	FLEX WRAP AIR RESTRICT PANEL #1
J	FLEX WRAP AIR RESTRICT PANEL #2
K	SINGLE HIGH PRESSURE PUMP STAND
L	8 BANK DSI PANEL #1
M	S.S. CONTROL PANEL (x2)
N	6 BANK DIS PANEL #2
O	DSI UNIT 2 PUMPS
P	AIR COMPRESSOR #1
Q	AIR DRYER
R	AIR COMPRESSOR #2
S	AIR GATE DRYER CONTROL PANEL #1
T	AIR GATE DRYER CONTROL PANEL #2
U	AIR GATE DRYER CONTROL PANEL #3
V	AIR GATE DRYER CONTROL PANEL #4
W	AIR GATE DRYER CONTROL PANEL #5
X	AIR GATE DRYER CONTROL PANEL #6
Y	AIR GATE DRYER CONTROL PANEL #7
Z	AIR GATE DRYER CONTROL PANEL #8
AA	TIRE GLAZE AIR RESTRICT PANEL
AB	TWIN WATER SOFTENERS
AC	BRINE TANK
AD	CHARCOAL FILTER
AR	R.O. UNIT - 10,000 GPF SYSTEM
AF	650 GALLON R.O. TANK
AG	650 GALLON R.O. REJECT TANK
AH	R.O. REJECT PUMP
AJ	SWEETWATER RECLAIM TANK

RECLAIM SYSTEM NOTE:
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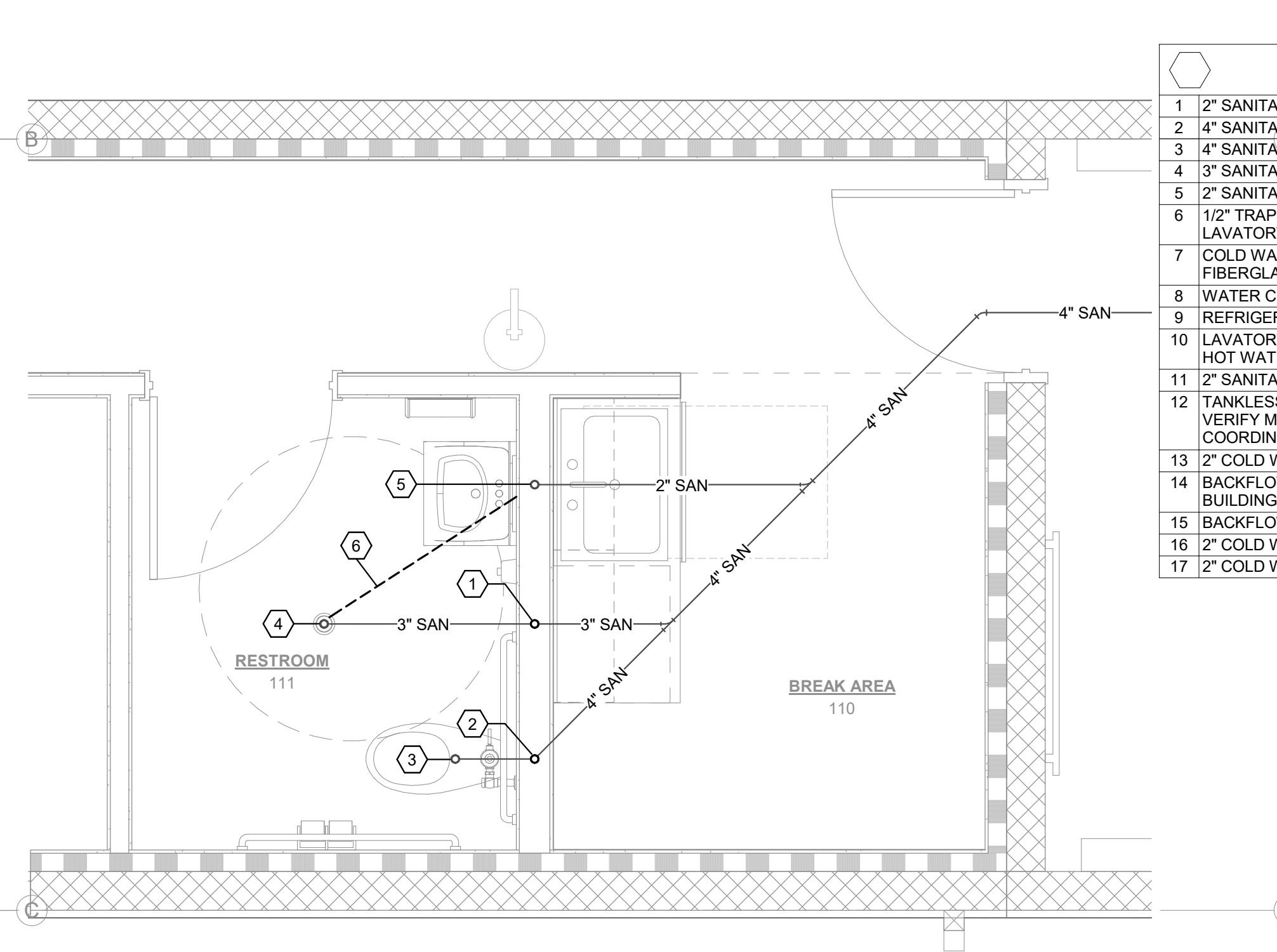
ALL SLAB PENETRATION SHALL BE COORDINATED PRIOR TO ANY UNDERGROUND PIPING IS INSTALLED.

REVISIONS:

05-05-22	ISSUE FOR PERMIT
A	05-05-28 IFC



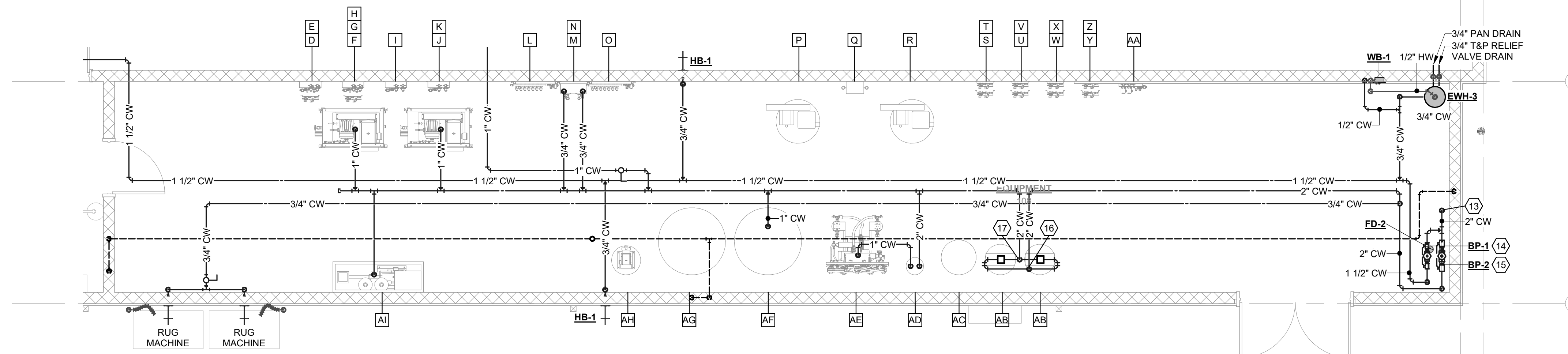
2 ENLARGED OFFICE - PLUMBING PLAN
1/2" = 1'-0"



1 ENLARGED OFFICE - UNDERFLOOR PLAN
1/2" = 1'-0"

- KEYED NOTES**
- 2" SANITARY VENT UP
 - 4" SANITARY VENT UP
 - 3" SANITARY WASTE UP TO WATER CLOSET
 - 3" SANITARY WASTE UP TO FLOOR DRAIN
 - 2" SANITARY WASTE UP TO BACK LAVATORY / SINK
 - 1/2" TRAP PRIMER LINE FROM TRAP PRIMER UNIT ON COLD WATER SUPPLY TO LAVATORY
 - COLD WATER ROUTED IN CAR WASH TUNNEL SHALL BE INSULATED WITH 1 1/2" FIBERGLASS INSULATION. REFER TO PLUMBING SPECIFICATIONS.
 - WATER CLOSET, PROVIDE 1/2" COLD WATER, 4" SANITARY WASTE AND 2" VENT.
 - REFRIGERATOR WALL BOX, PROVIDE 1/2" COLD WATER.
 - LAVATORY, PROVIDE THERMOSTATIC MIXING VALVE (SEE SCHEDULES), 1/2" COLD AND HOT WATER, 2" SANITARY WASTE AND 2" VENT.
 - 2" SANITARY WASTE UP TO SINK
 - TANKLESS WATER HEATER BELOW SINK/LAVATORY. CONTRACTOR SHALL FIELD VERIFY MOUNTING LOCATION SHALL MEET A.D.A. CLEARANCE REQUIREMENTS. COORDINATE WITH ARCHITECTURAL DETAILS.
 - 2" COLD WATER ENTRY INTO THE BUILDING
 - BACKFLOW PREVENTER ON COLD WATER SUPPLY LINE TO THE OFFICE AREA OF THE BUILDING
 - BACKFLOW PREVENTER ON COLD WATER SUPPLY LINE TO CAR WASH EQUIPMENT
 - 2" COLD WATER DROP TO WATER SOFTENER
 - 2" COLD WATER SUPPLY FROM WATER SOFTENER TO CAR WASH EQUIPMENT

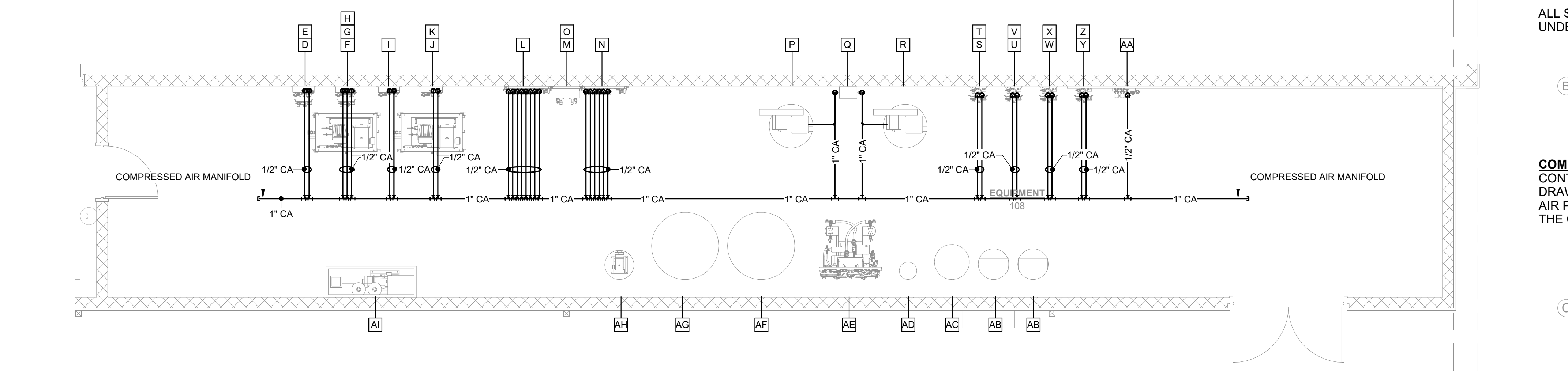
MARK	EQUIPMENT LIST
A	BALLAST PANEL
B	V5 TUNNEL CONTROLLER
C	MCC PANEL
D	WIZARD ARCH AIR RESTRICT PANEL
E	TOP BRUSH AIR RESTRICT PANEL #1
F	HYDRABLAST AIR RESTRICT PANEL
G	TOP BRUSH AIR RESTRICT PANEL #2
H	DUAL HIGH PRESSURE PUMP STAND
I	FLEX WRAP AIR RESTRICT PANEL #1
J	FLEX WRAP AIR RESTRICT PANEL #2
K	SINGLE HIGH PRESSURE PUMP STAND
L	8 BANK DSI PANEL #1
M	S.S. CONTROL PANEL (x2)
N	6 BANK DIS PANEL #2
O	DSI UNIT 2 PUMPS
P	AIR COMPRESSOR #1
Q	AIR DRYER
R	AIR COMPRESSOR #2
S	AIR GATE DRYER CONTROL PANEL #1
T	AIR GATE DRYER CONTROL PANEL #2
U	AIR GATE DRYER CONTROL PANEL #3
V	AIR GATE DRYER CONTROL PANEL #4
W	AIR GATE DRYER CONTROL PANEL #5
X	AIR GATE DRYER CONTROL PANEL #6
Y	AIR GATE DRYER CONTROL PANEL #7
Z	AIR GATE DRYER CONTROL PANEL #8
AA	TIRE GLAZE AIR RESTRICT PANEL
AB	TWIN WATER SOFTENERS
AC	BRINE TANK
AD	CHARCOAL FILTER
AR	R.O. UNIT - 10,000 GPF SYSTEM
AF	650 GALLON R.O. TANK
AG	650 GALLON R.O. REJECT TANK
AH	R.O. REJECT PUMP
AJ	SWEETWATER RECLAIM TANK



3 ENLARGED EQPT RM - PLUMBING PLAN
1/4" = 1'-0"

RECLAIM SYSTEM NOTE:
CONTRACTOR SHALL REFER TO COLEMAN HANNA CARWASH SYSTEM DRAWINGS FOR EXACT POINT OF CONNECTIONS FOR THE RECLAIM PIPING AND SIZING FROM HEAD END EQUIPMENT TO THE EQUIPMENT IN THE CAR WASH TUNNEL.

ALL SLAB PENETRATION SHALL BE COORDINATED PRIOR TO ANY UNDERGROUND PIPING IS INSTALLED.

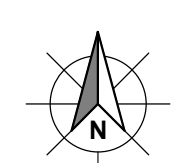


4 ENLARGED EQPT RM - COMPRESSED AIR PLAN
1/4" = 1'-0"

COMPRESSED AIR SYSTEM NOTE:
CONTRACTOR SHALL REFER TO COLEMAN HANNA CARWASH SYSTEM DRAWINGS FOR EXACT POINT OF CONNECTIONS FOR THE COMPRESSED AIR PIPING AND SIZING FROM HEAD END EQUIPMENT TO THE EQUIPMENT IN THE CAR WASH TUNNEL.

REVISIONS:

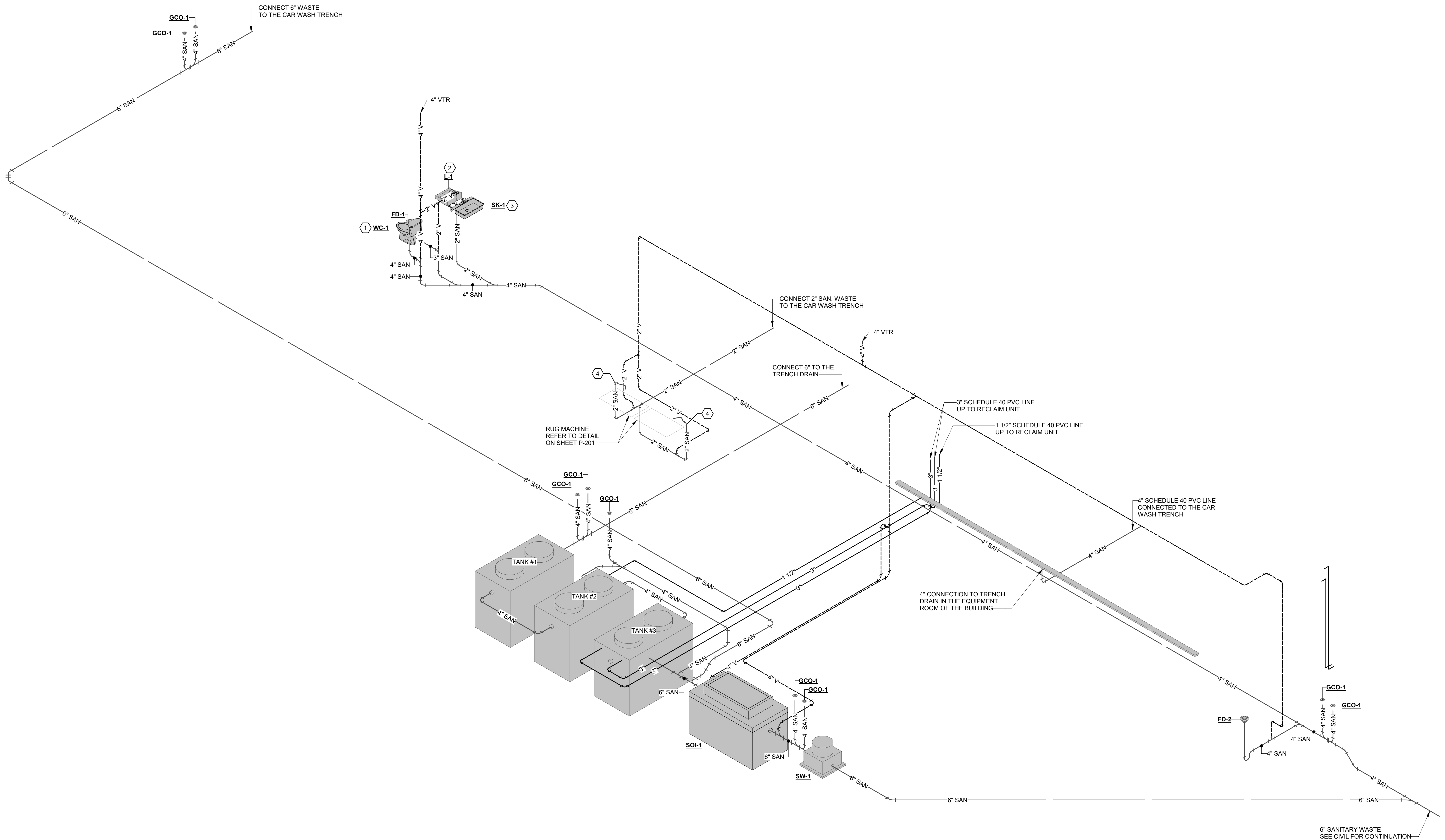
NO.	DATE	DESCRIPTION
1	08-08-22	ISSUE FOR PERMIT
2	10-05-23	IFC



RECLAIM SYSTEM NOTE:
 CONTRACTOR SHALL REFER TO COLEMAN HANNA CARWASH SYSTEM DRAWINGS FOR EXACT POINT OF CONNECTIONS FOR THE RECLAIM PIPING AND SIZING FROM HEAD END EQUIPMENT TO THE EQUIPMENT IN THE CAR WASH TUNNEL.

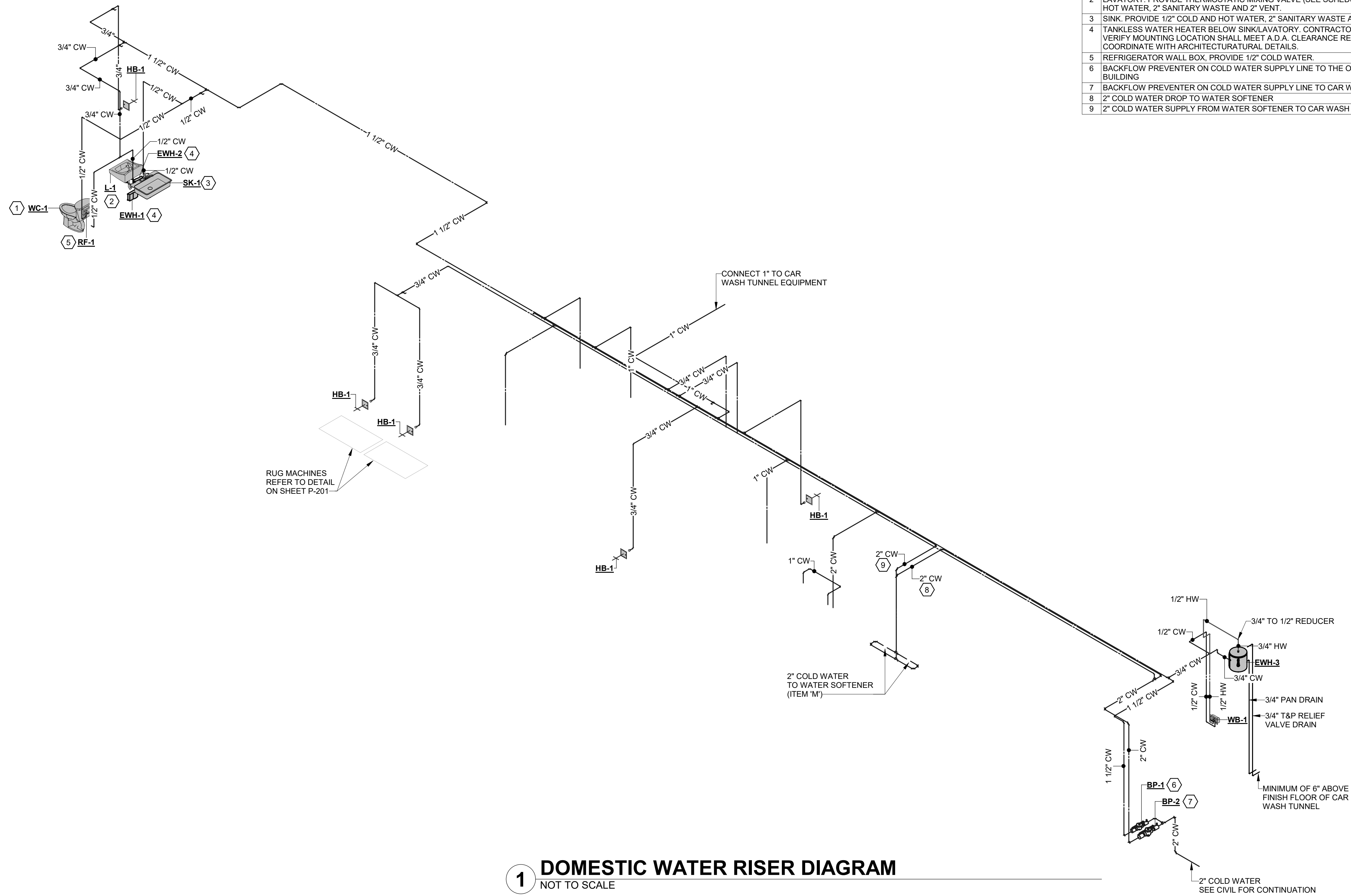
ALL SLAB PENETRATION SHALL BE COORDINATED PRIOR TO ANY UNDERGROUND PIPING IS INSTALLED.

KEYED NOTES	
1	WATER CLOSET. PROVIDE, 1/2" COLD WATER, 4" SANITARY WASTE AND 2" VENT.
2	LAVATORY. PROVIDE THERMOSTATIC MIXING VALVE (SEE SCHEDULES), 1/2" COLD AND HOT WATER, 2" SANITARY WASTE AND 2" VENT.
3	SINK. PROVIDE 1/2" COLD AND HOT WATER, 2" SANITARY WASTE AND 2" VENT.
4	2" SANITARY WASTE HARD PIPE CONNECTION AND FLEXIBLE HOSE TO RUG MACHINE. REFER TO PLUMBING DETAIL OF RUG MACHINE.



1 SANITARY AND VENT RISER DIAGRAM
 NOT TO SCALE

REVISIONS:
08-30-22 ISSUE FOR PERMIT
A 05-05-23 IFC



1 DOMESTIC WATER RISER DIAGRAM
NOT TO SCALE

KEYED NOTES	
1	WATER CLOSET. PROVIDE 1/2" COLD WATER, 4" SANITARY WASTE AND 2" VENT.
2	LAVATORY. PROVIDE THERMOSTATIC MIXING VALVE (SEE SCHEDULES), 1/2" COLD AND HOT WATER, 2" SANITARY WASTE AND 2" VENT.
3	SINK. PROVIDE 1/2" COLD AND HOT WATER, 2" SANITARY WASTE AND 2" VENT.
4	TANKLESS WATER HEATER BELOW SINK/LAVATORY. CONTRACTOR SHALL FIELD VERIFY MOUNTING LOCATION SHALL MEET A.D.A. CLEARANCE REQUIREMENTS. COORDINATE WITH ARCHITECTURAL DETAILS.
5	REFRIGERATOR WALL BOX. PROVIDE 1/2" COLD WATER.
6	BACKFLOW PREVENTER ON COLD WATER SUPPLY LINE TO THE OFFICE AREA OF THE BUILDING
7	BACKFLOW PREVENTER ON COLD WATER SUPPLY LINE TO CAR WASH EQUIPMENT
8	2" COLD WATER DROP TO WATER SOFTENER
9	2" COLD WATER SUPPLY FROM WATER SOFTENER TO CAR WASH EQUIPMENT

MARK	EQUIPMENT LIST
D	AIR COMPRESSOR #1
E	AIR DRYER
F	AIR COMPRESSOR #2
G	RO REJECT RECOVERY PUMP
H	650 GALLON TANK #1
I	650 GALLON TANK #2
J	650 GALLON TANK #3
K	RO UNIT - 10,000 GPD
L	CHARCOAL FILTER
M	TWIN WATER SOFTENER
N	BRINE TANK
O	SWEETWATER RECLAIM UNIT
P	7 BANK DSI PANEL
Q	8 BANK DSI PANEL
R	S.S. CONTROL PANEL #1
S	S.S. CONTROL PANEL #2
T	DSI UNIT 3 PUMPS
U	5 BANK DIS PANEL
V	HYDRABLAST AIR RESTRICT PANEL
W	FLEX WRAP AIR RESTRICT PANEL #1
X	AIR BLAST GATE #1
Y	TOP BRUSH AIR RESTRICT PANEL
Z	SINGLE HIGH PRESSURE PUMP STAND
A1	AIR BLAST GATE #2
A2	FLEX WRAP AIR RESTRICT PANEL #2
A3	AIR BLAST GATE #3
A4	AIR BLAST GATE #4
A5	AIR BLAST GATE #5
A6	AIR BLAST GATE #6
A7	AIR BLAST GATE #7
A8	AIR BLAST GATE #8
A8	TIRE GLAZE AIR RESTRICT PANEL

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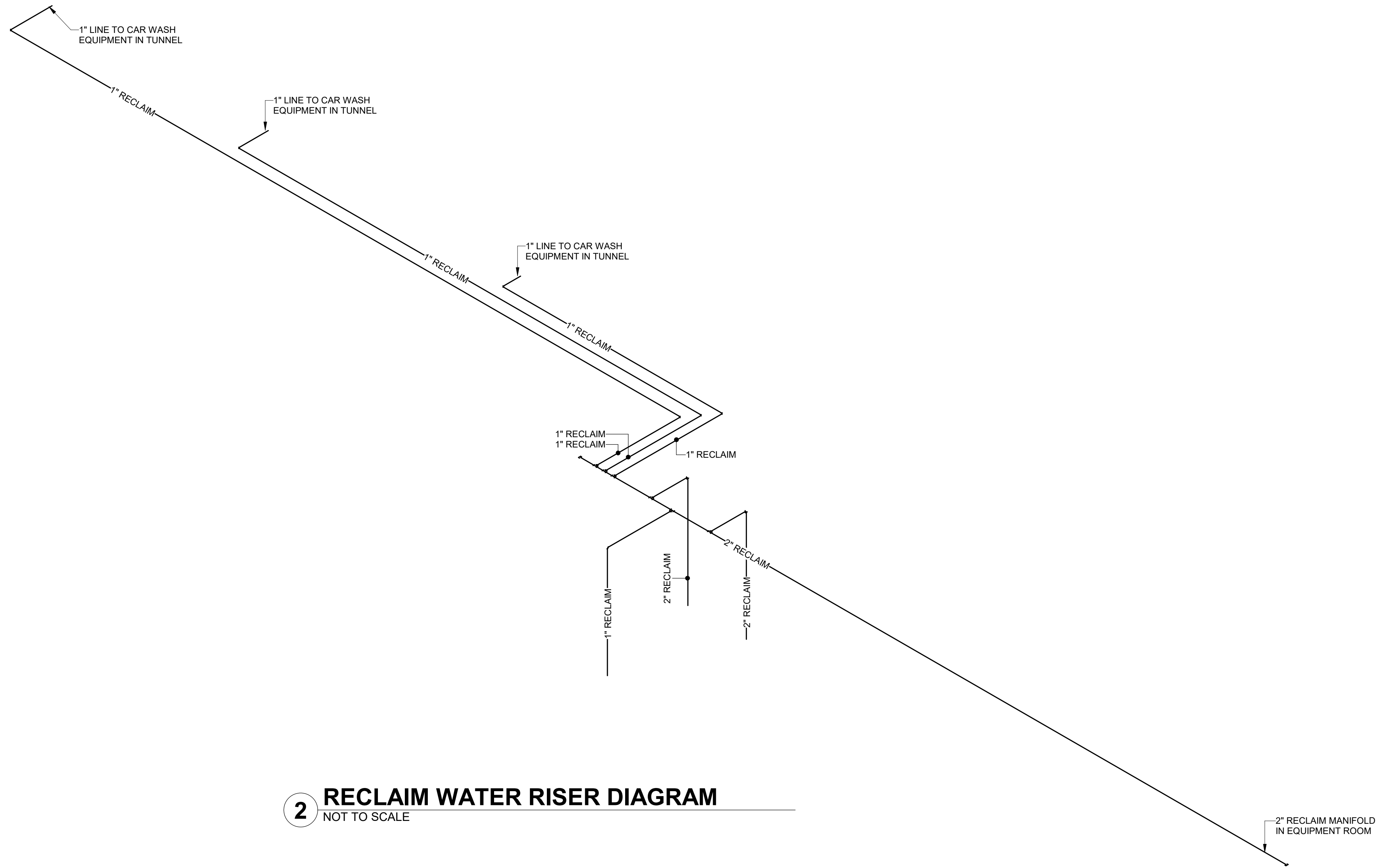
REVISIONS:

08-08-22	ISSUE FOR PERMIT
A	05-05-23 IFC

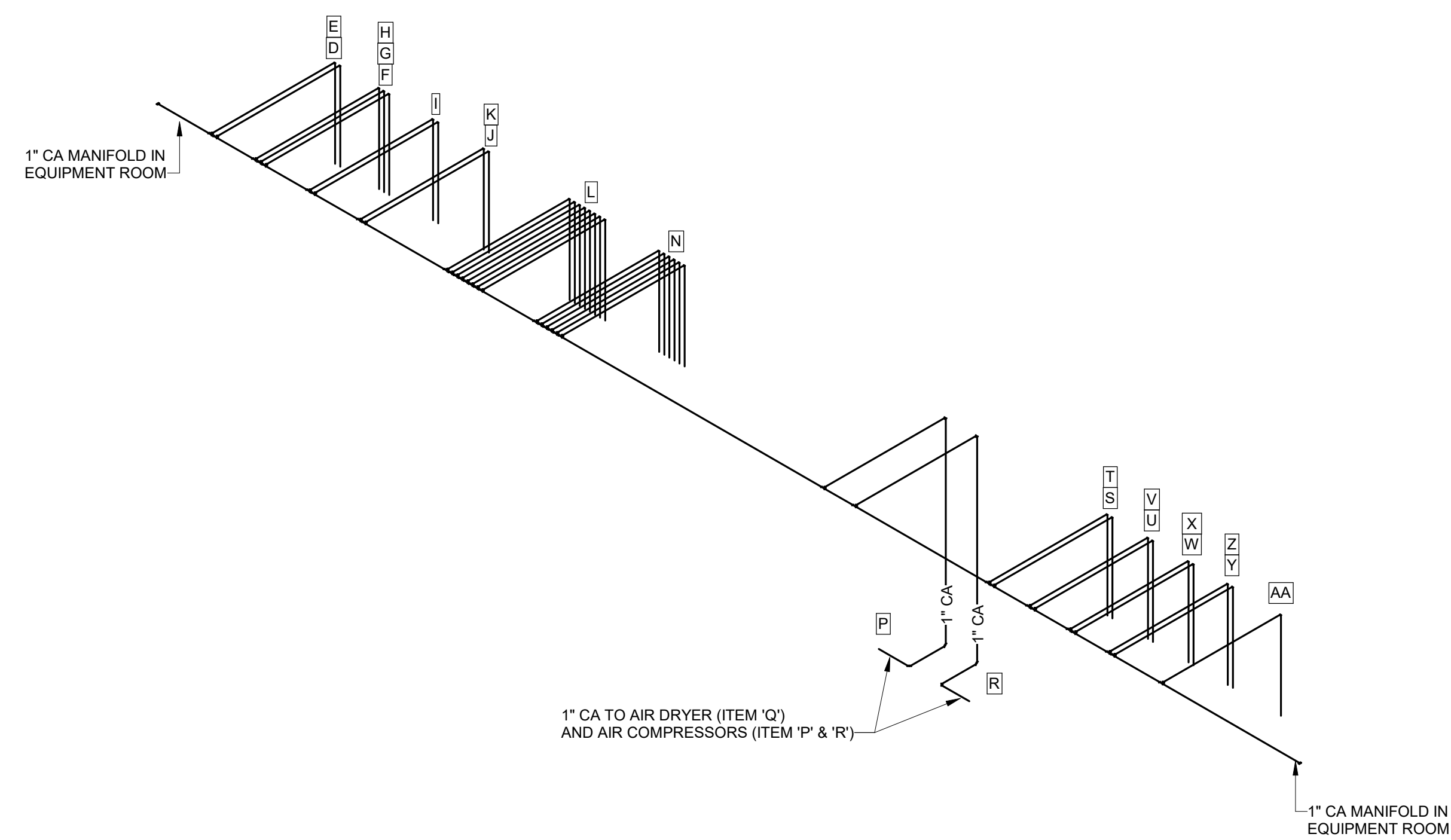
PM: CFC DE: JPC

PROJECT:
792208473

SHEET:
P-502
PLUMBING RISER
DIAGRAM



2 RECLAIM WATER RISER DIAGRAM
NOT TO SCALE



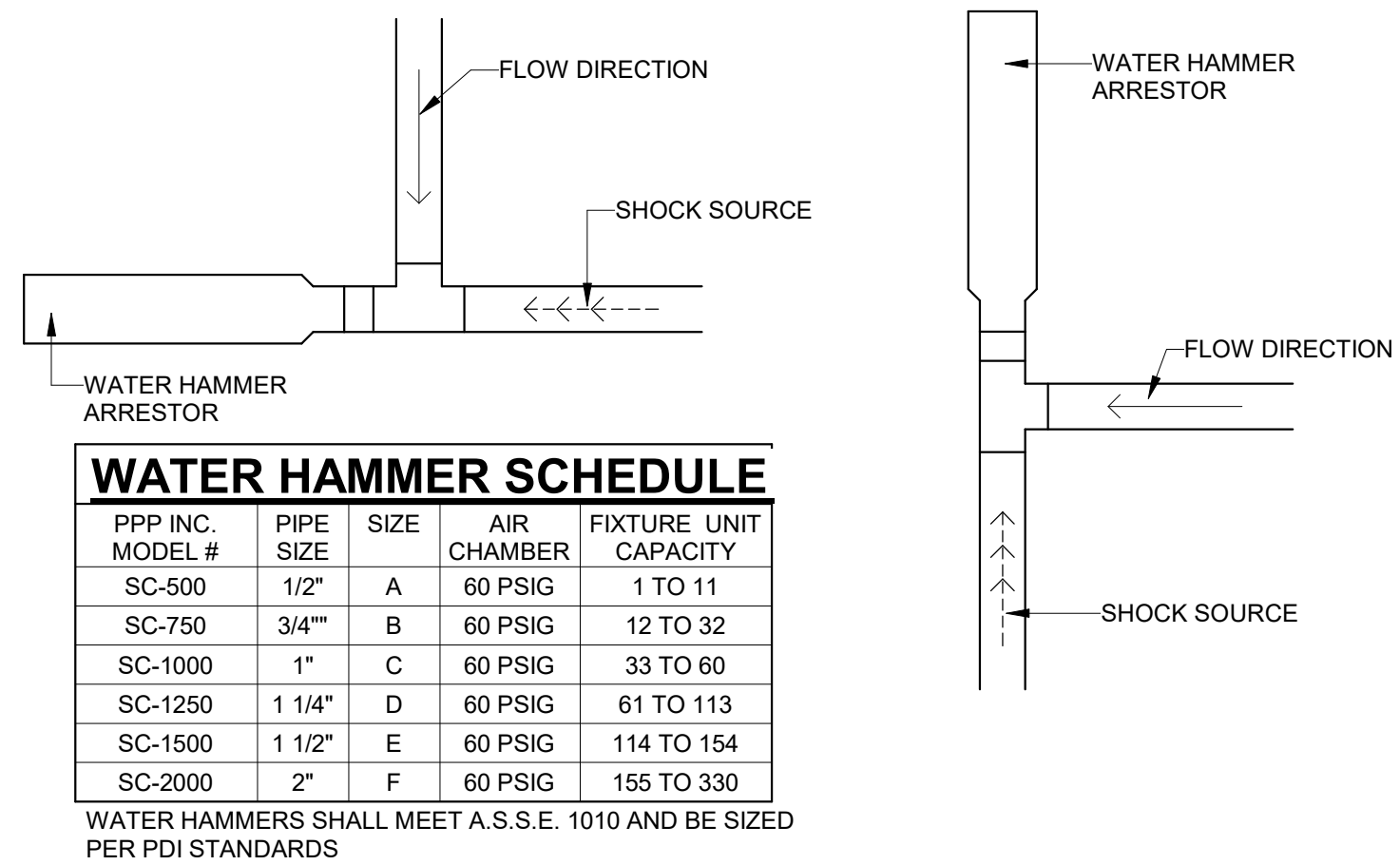
1 COMPRESSED AIR RISER DIAGRAM
NOT TO SCALE

MARK	EQUIPMENT LIST
D	AIR COMPRESSOR #1
E	AIR DRYER
F	AIR COMPRESSOR #2
G	RO REJECT RECOVERY PUMP
H	650 GALLON TANK #1
I	650 GALLON TANK #2
J	650 GALLON TANK #3
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N	BRINE TANK
O	SWEETWATER RECLAIM UNIT
P	7 BANK DSI PANEL
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T	DSI UNIT 3 PUMPS
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A1	AIR BLAST GATE #2
A2	FLEX WRAP AIR RESTRICT PANEL #2
A3	AIR BLAST GATE #3
A4	AIR BLAST GATE #4
A5	AIR BLAST GATE #5
A6	AIR BLAST GATE #6
A7	AIR BLAST GATE #7
A8	AIR BLAST GATE #8
A8	TIRE GLAZE AIR RESTRICT PANEL

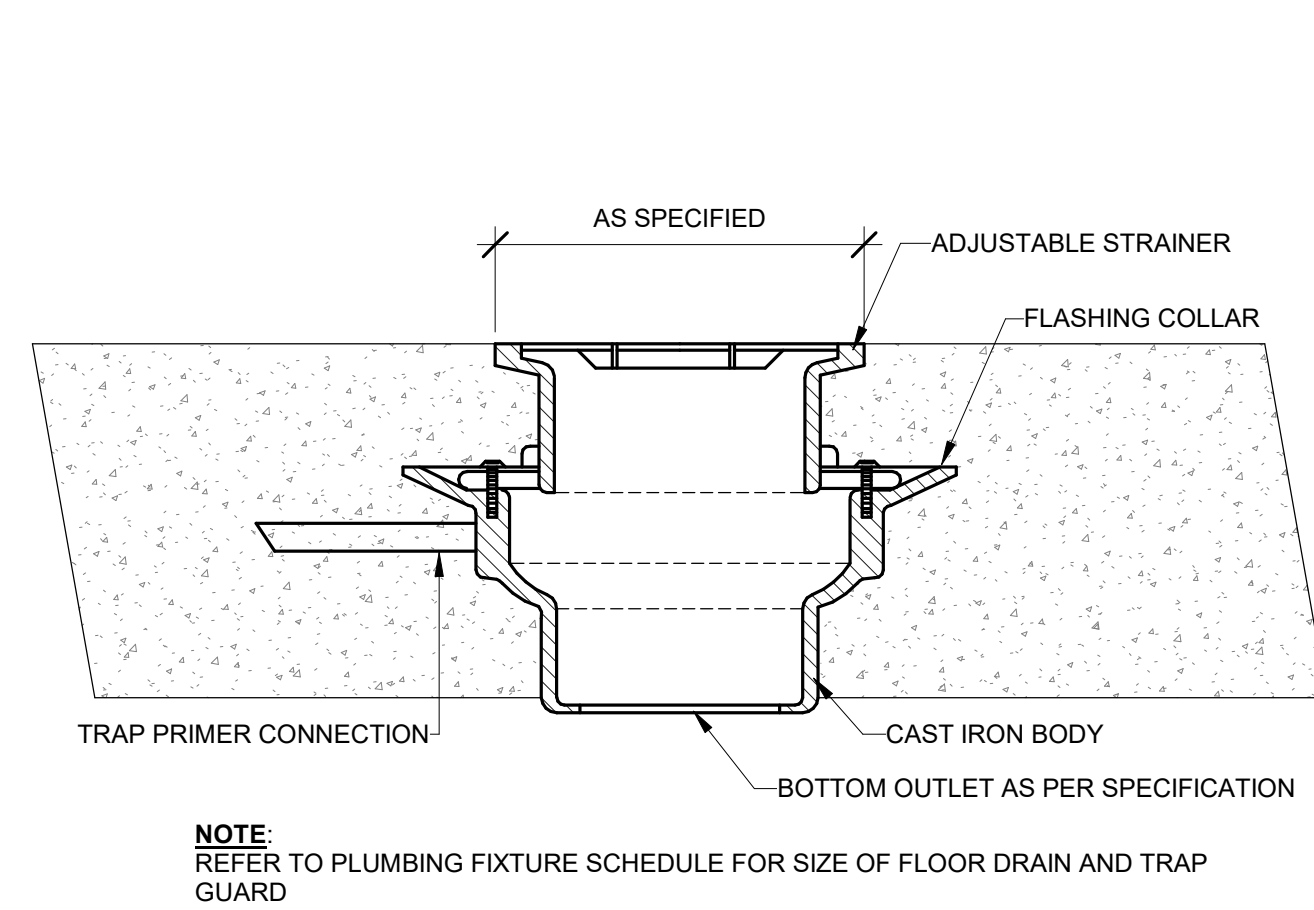
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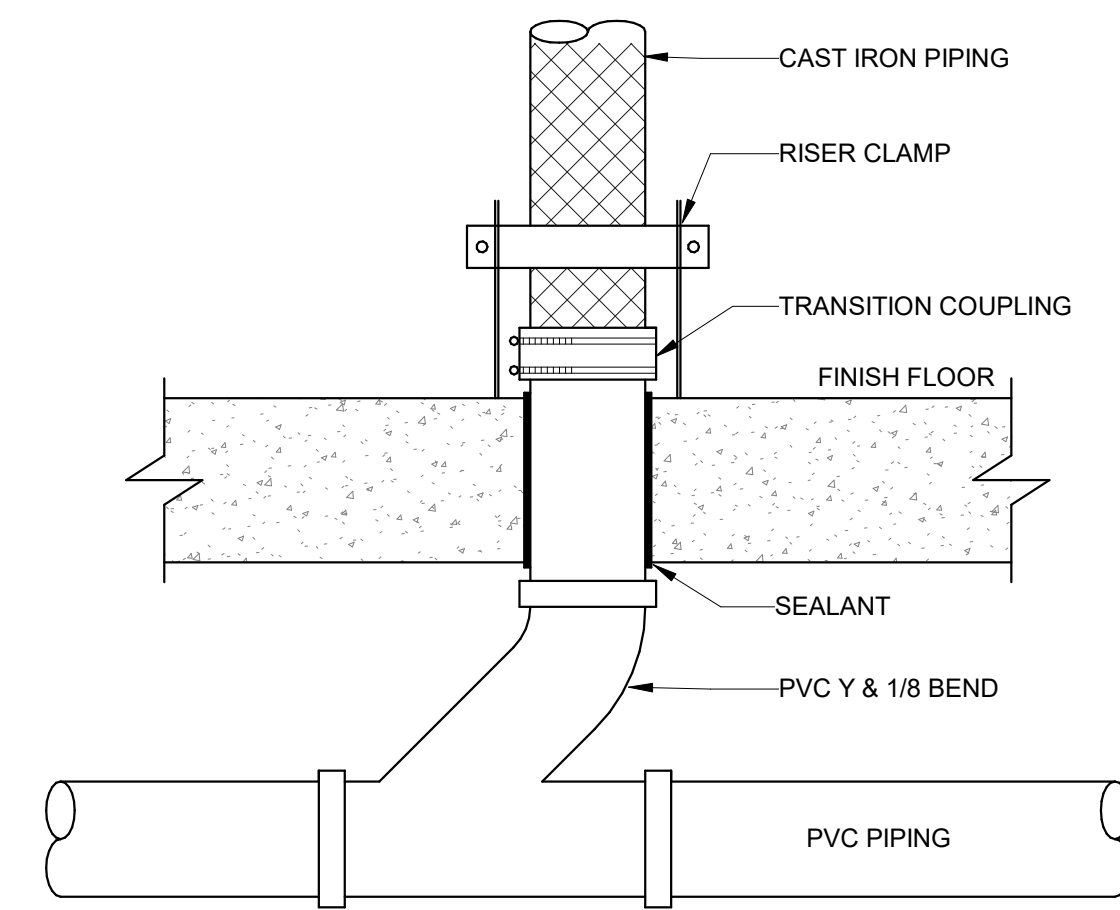
COMPRESSED AIR SYSTEM NOTE:
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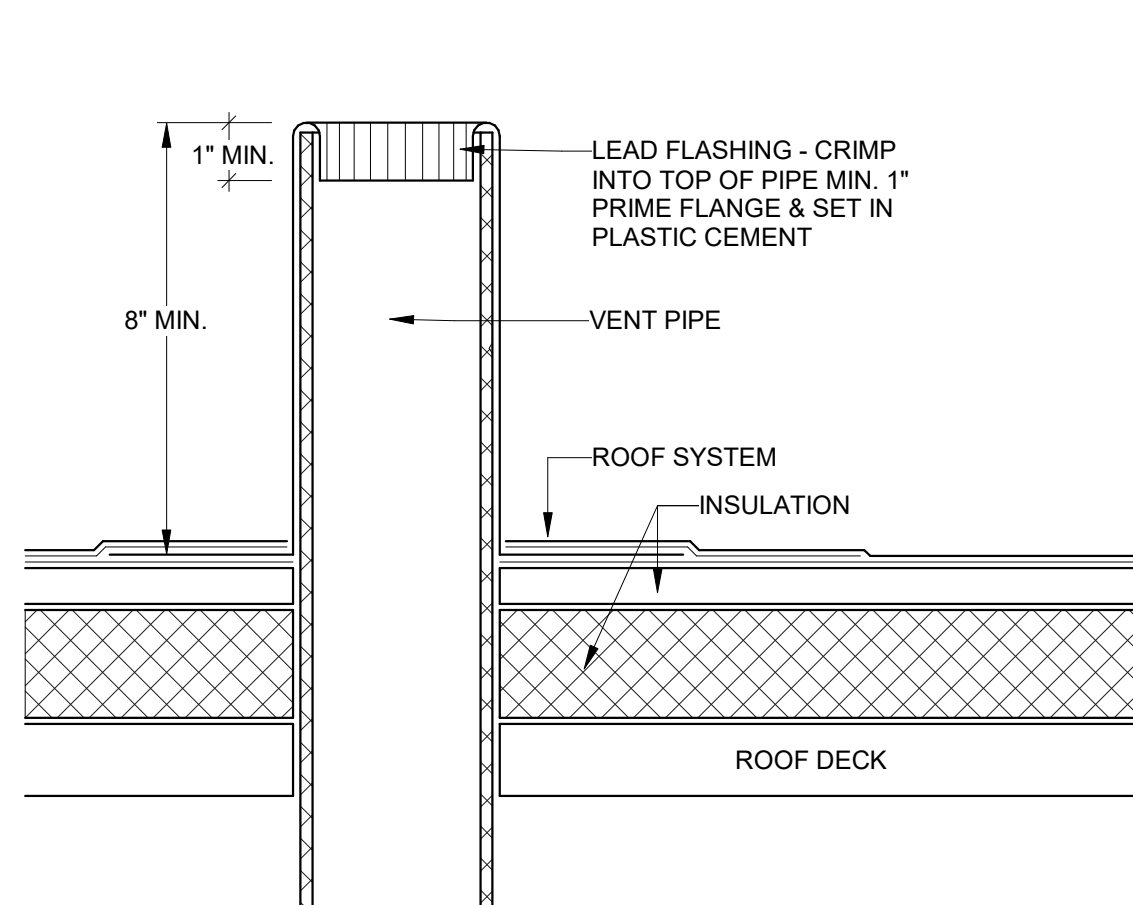
8 WATER HAMMER ARRESTOR
NOT TO SCALE



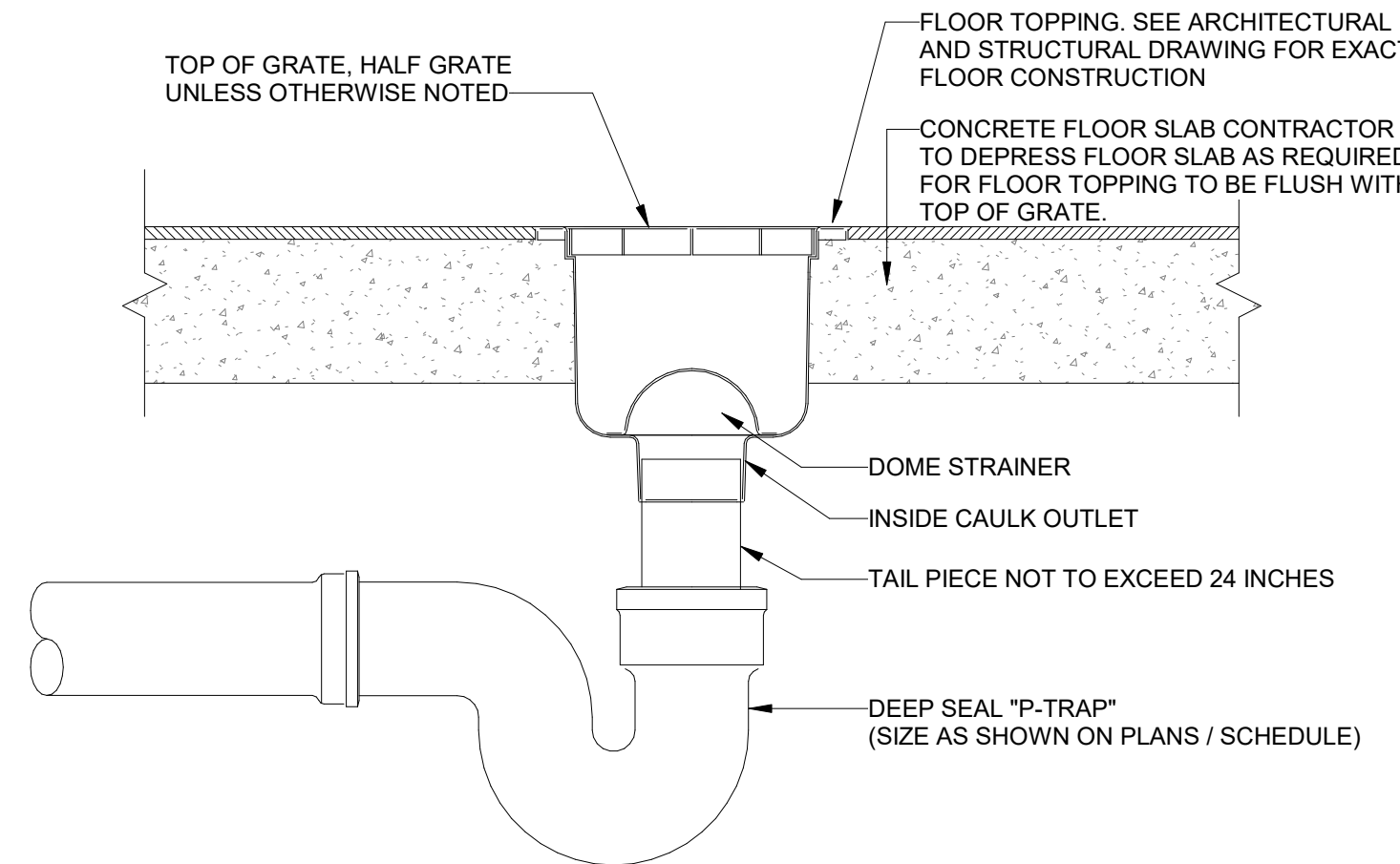
4 FLOOR DRAIN WITH TRAP PRIMER CONNECTION
NOT TO SCALE



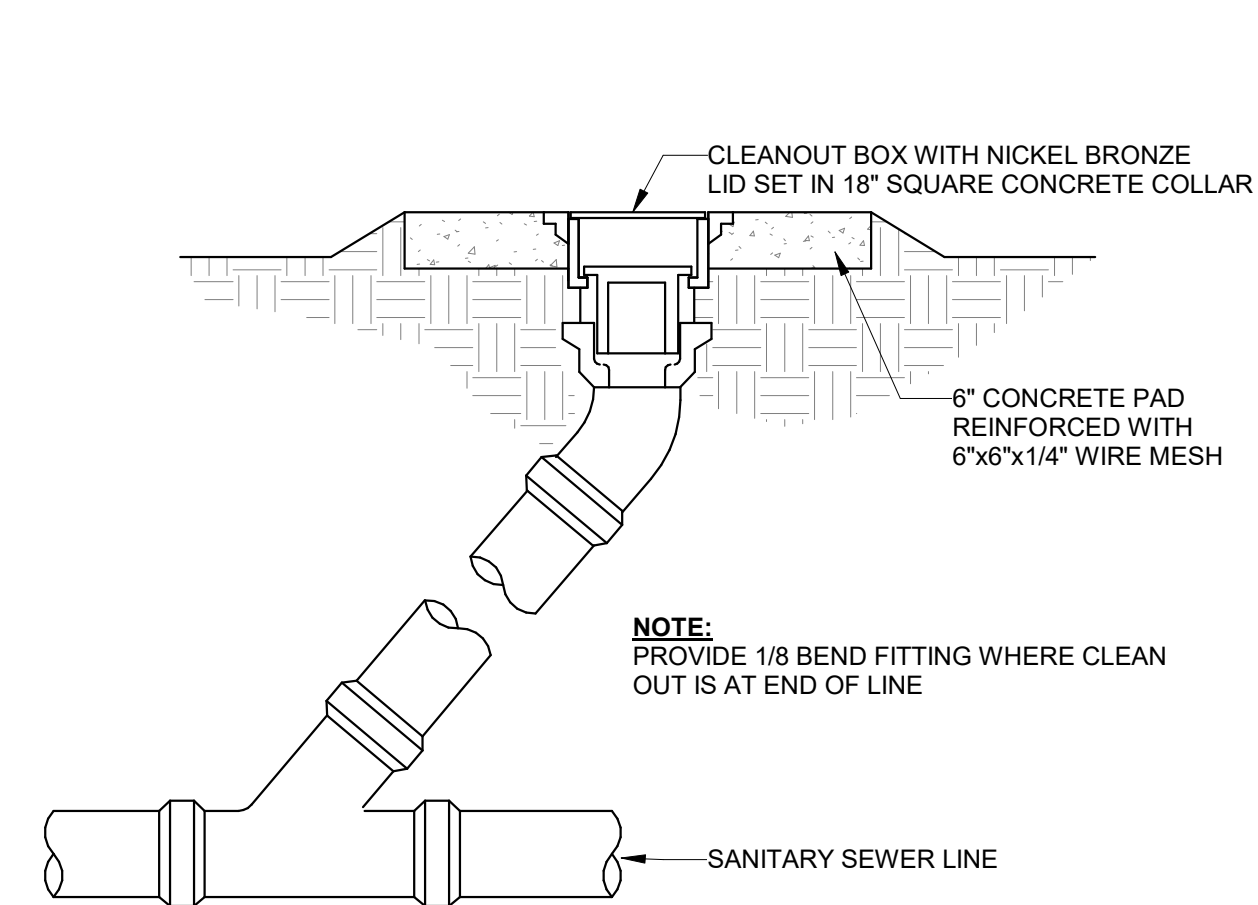
1 CAST IRON TO PVC TRANSITION
NOT TO SCALE



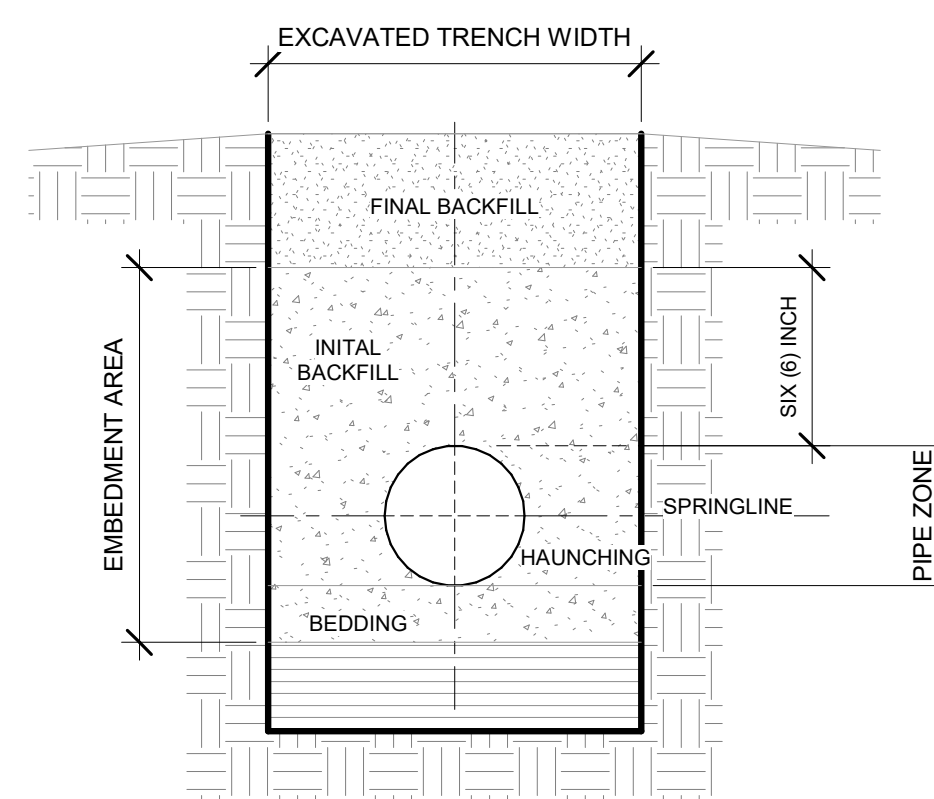
7 VENT THRU ROOF
NOT TO SCALE



5 FLOOR SINK
NOT TO SCALE



2 EXTERIOR CLEANOUT
NOT TO SCALE



6 UNDERGROUND INSTALLATION OF PLASTIC PIPING
NOT TO SCALE

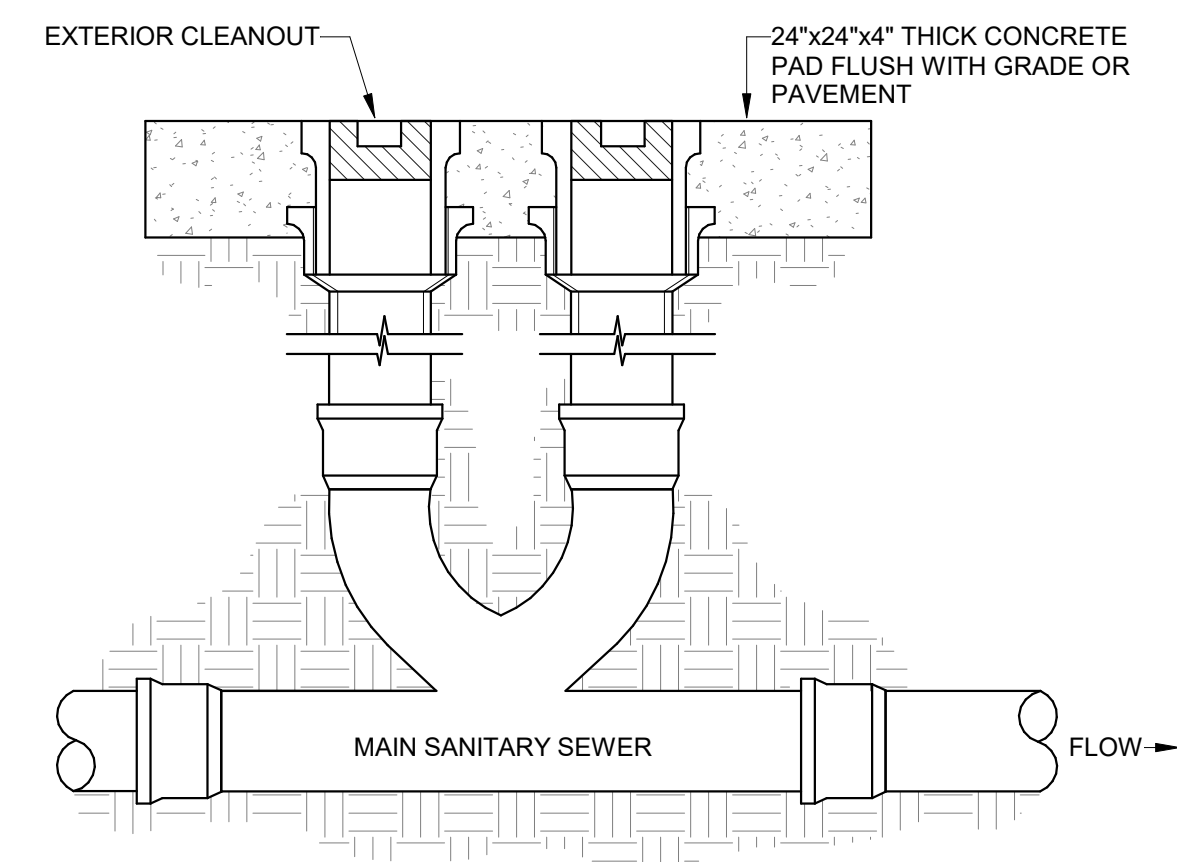
UNDERGROUND INSTALLATION OF PLASTIC PIPE
PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARD ARE:

- ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS.
- ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING.

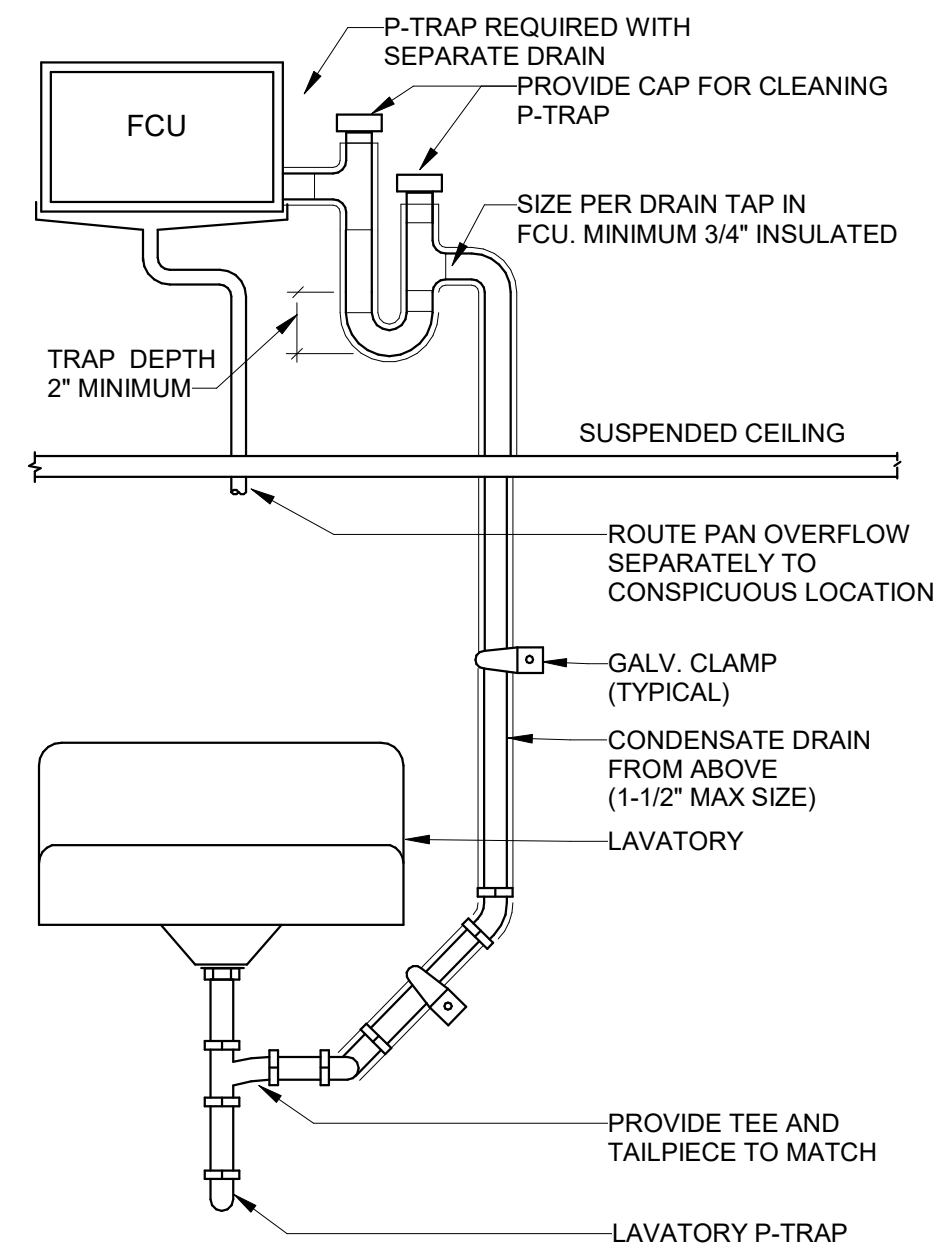
NOTE: IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS.

RECOMMENDATION FOR UNGROUND INSTALLATION OF PLASTIC DRAINAGE PIPE

- THE MINIMUM WIDTH OF THE TRENCH SHOULD BE THE PIPE OD (OUTSIDE DIAMETER) PLUS 16 INCHES OR THE PIPE OUTSIDE DIAMETER TIMES 1.25 PLUS 12 INCHES. THIS WILL ALLOW ADEQUATE ROOM FOR JOINING THE PIPE, SNAKING THE PIPE IN THE TRENCH TO ALLOW FOR EXPANSION AND CONTRACTION WHERE APPROPRIATE AND SPACE FOR BACKFILLING AND COMPACTION OF BACKFILL. THE SPACE BETWEEN THE PIPE AND TRENCH WALL MUST BE WIDER THAN THE COMPACTION EQUIPMENT USED TO COMPACT BACKFILL.
- PROVIDE A MINIMUM OF 4 INCHES OF FIRM, STABLE AND UNIFORM BEDDING MATERIAL IN THE TRENCH BOTTOM. IF ROCK OR UNYIELDING MATERIAL IS ENCOUNTERED, A MINIMUM OF 6 INCHES OF BEDDING SHALL BE USED. BLOCKING SHOULD NOT BE USED TO CHANGE PIPE GRADE OR TO INTERMITTENTLY SUPPORT PIPE OVER LOW SECTIONS IN THE TRENCH.
- THE PIPE SHOULD BE SURROUNDED WITH AN AGGREGATE MATERIAL WHICH CAN BE EASILY WORKED AROUND THE SIDES OF THE PIPE. BACKFILLING SHOULD BE PERFORMED IN LAYERS OF 6 INCHES WITH EACH LAYER BEING SUFFICIENTLY COMPACTED TO 85% TO 95% COMPACTION.
- A MECHANICAL TAMPER IS RECOMMENDED FOR COMPACTING SAND AND GRAVEL. THESE MATERIALS CONTAIN FINE-GRAINS, SUCH AS SILT AND CLAY. IF A TAMPER IS NOT AVAILABLE, COMPACTING SHOULD BE DONE BY HAND.
- THE TRENCH SHOULD BE COMPLETELY FILLED. THE BACKFILL SHOULD BE PLACED AND SPREAD IN UNIFORM LAYERS TO PREVENT ANY UNFILLED SPACES OR VOIDS. LARGE ROCKS, STONES, FROZEN CLODS OR OTHER LARGE DEBRIS SHOULD BE REMOVED. STONE BACKFILL SHALL PASS THROUGH AN 1-1/2" SIEVE. ROCK SIZE SHOULD BE ABOUT ONE-TENTH OF THE PIPE OUTSIDE DIAMETER. HEAVY TAMPERS OR ROLLING EQUIPMENT SHOULD ONLY BE USED TO CONSOLIDATE THE FINAL BACKFILL.
- TO PREVENT DAMAGE TO THE PIPE AND DISTURBANCE TO PIPE EMBEDMENT, A MINIMUM DEPTH OF BACKFILL ABOVE THE PIPE SHOULD BE MAINTAINED. PIPE SHOULD ALWAYS BE INSTALLED BELOW THE FROST LEVEL. TYPICALLY, IT IS NOT ADVISABLE TO ALLOW VEHICULAR TRAFFIC OR HEAVY CONSTRUCTION EQUIPMENT TO TRAVERSE THE PIPE TRENCH.

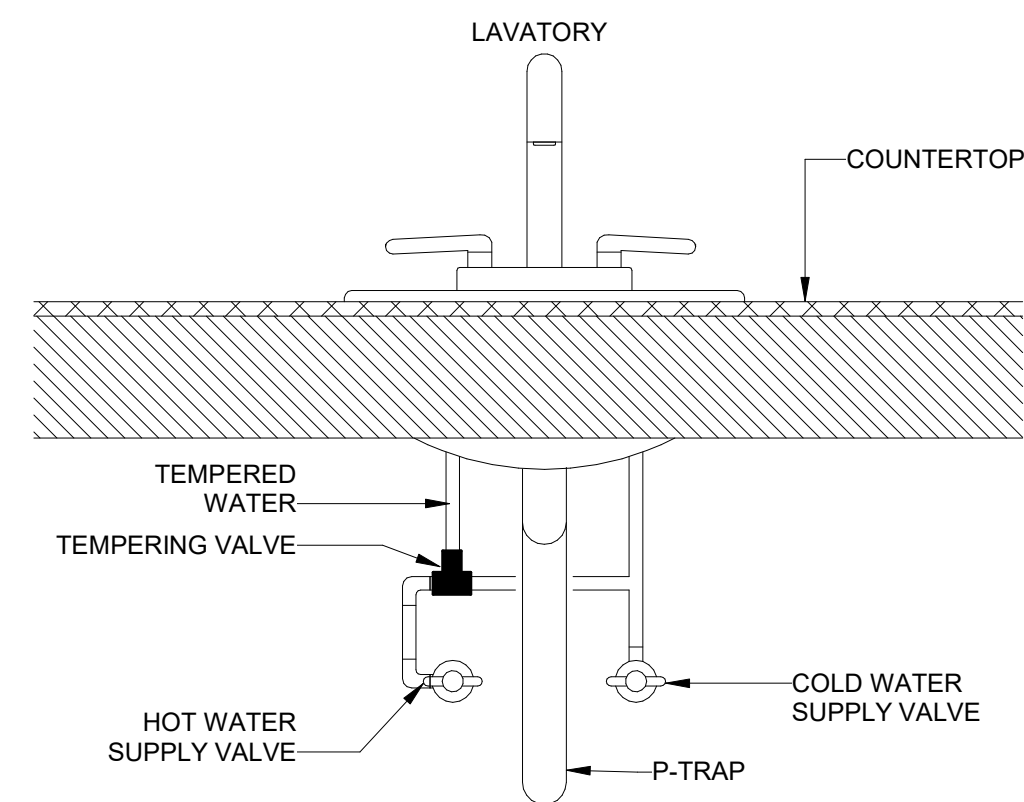


3 TWO-WAY EXTERIOR CLEANOUT
NOT TO SCALE



7 CONDENSATE DRAIN TO LAVATORY TAILPIECE

NOT TO SCALE



NOTE: DETAIL APPLIES TO ALL LAVATORIES WHERE HAND WASHING OCCURS. REFER TO PLUMBING FIXTURES SCHEDULE ACCESSORIES FOR SPECIFICATION.

4 TMV INSTALLATION

NOT TO SCALE

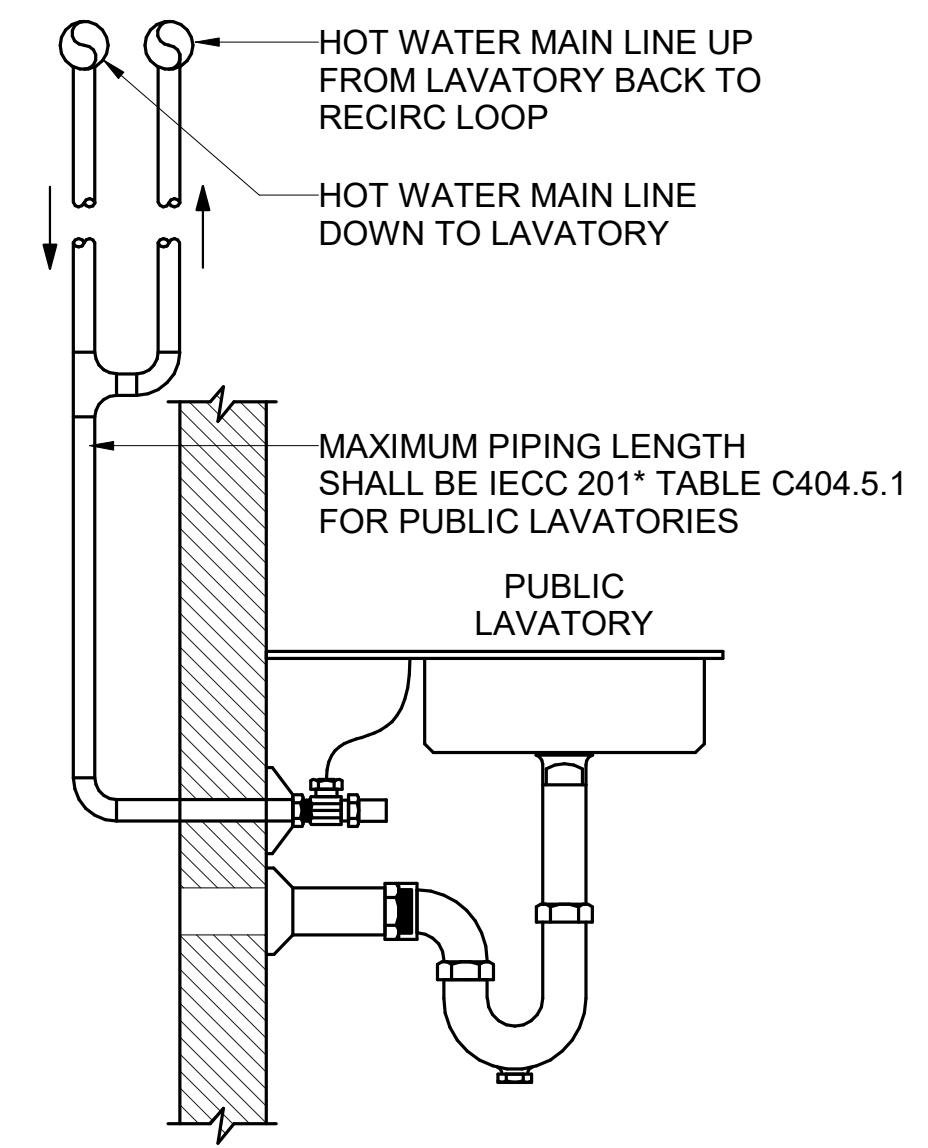
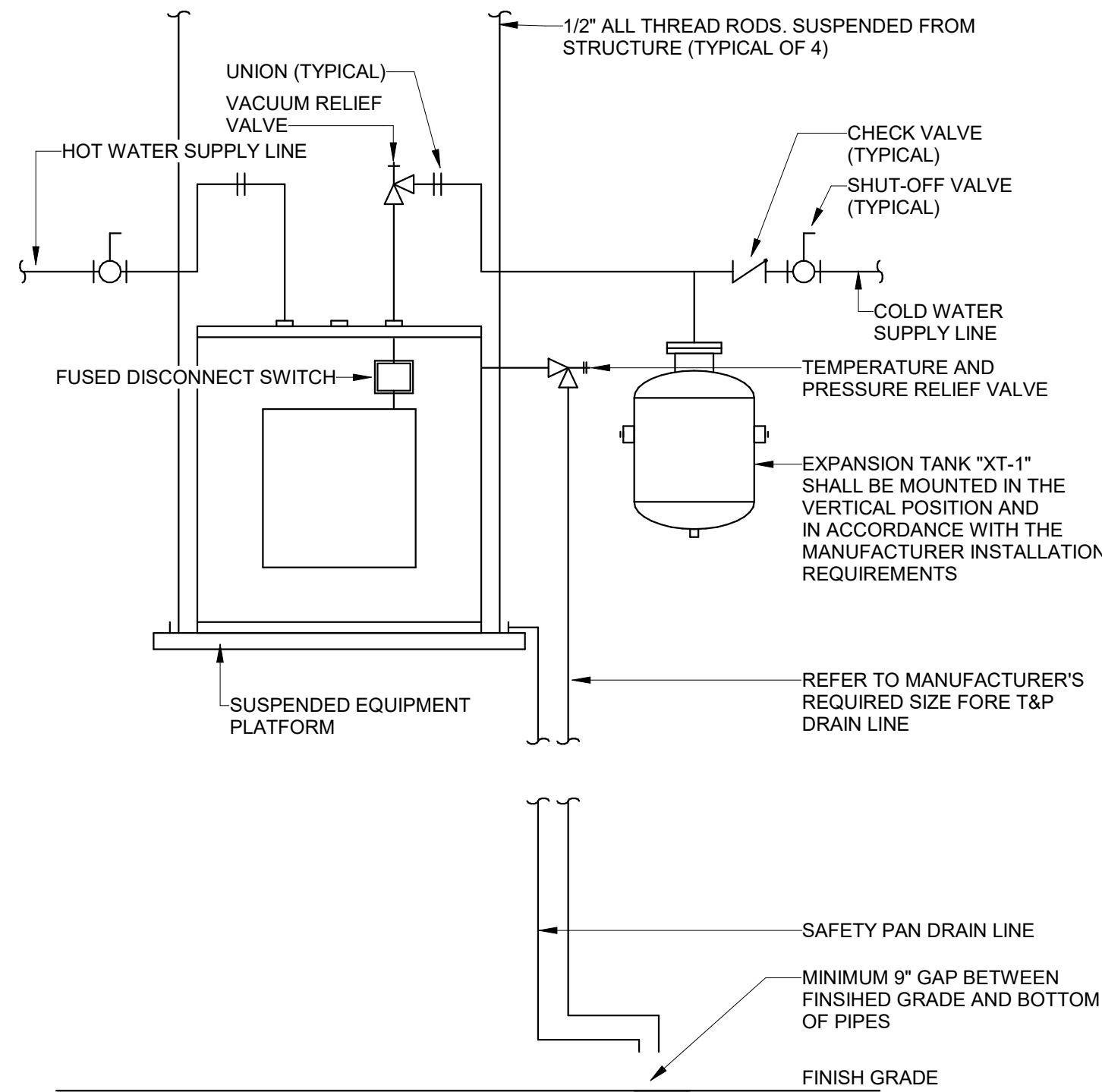


TABLE C404.5.1 PIPING VOLUME & MAXIMUM PIPING LENGTH

NOMINAL PIPE SIZE (INCHES)	VOLUME	MAXIMUM PIPING LENGTH (FEET)	
		PUBLIC LAVATORY FAUCET	OTHER FIXTURES & APPLIANCES
1/2"	1.5	2	43
3/4"	3	0.5	21
1"	5	0.5	13
1 1/4"	8	0.5	8
1 1/2"	11	0.5	6
2" OR LARGER	18	0.5	4

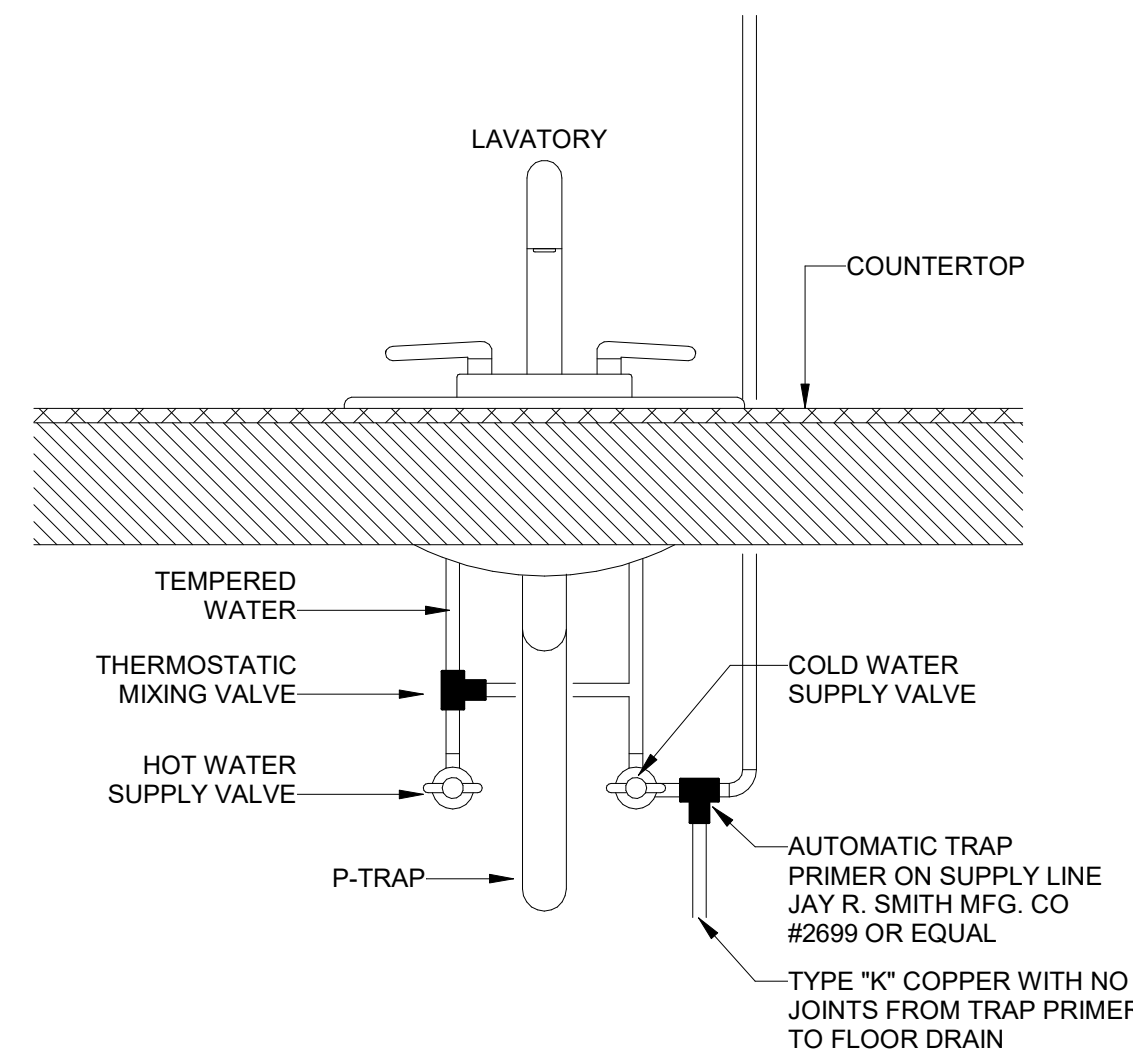
1 IECC MAXIMUM PIPING LENGTHS

NOT TO SCALE



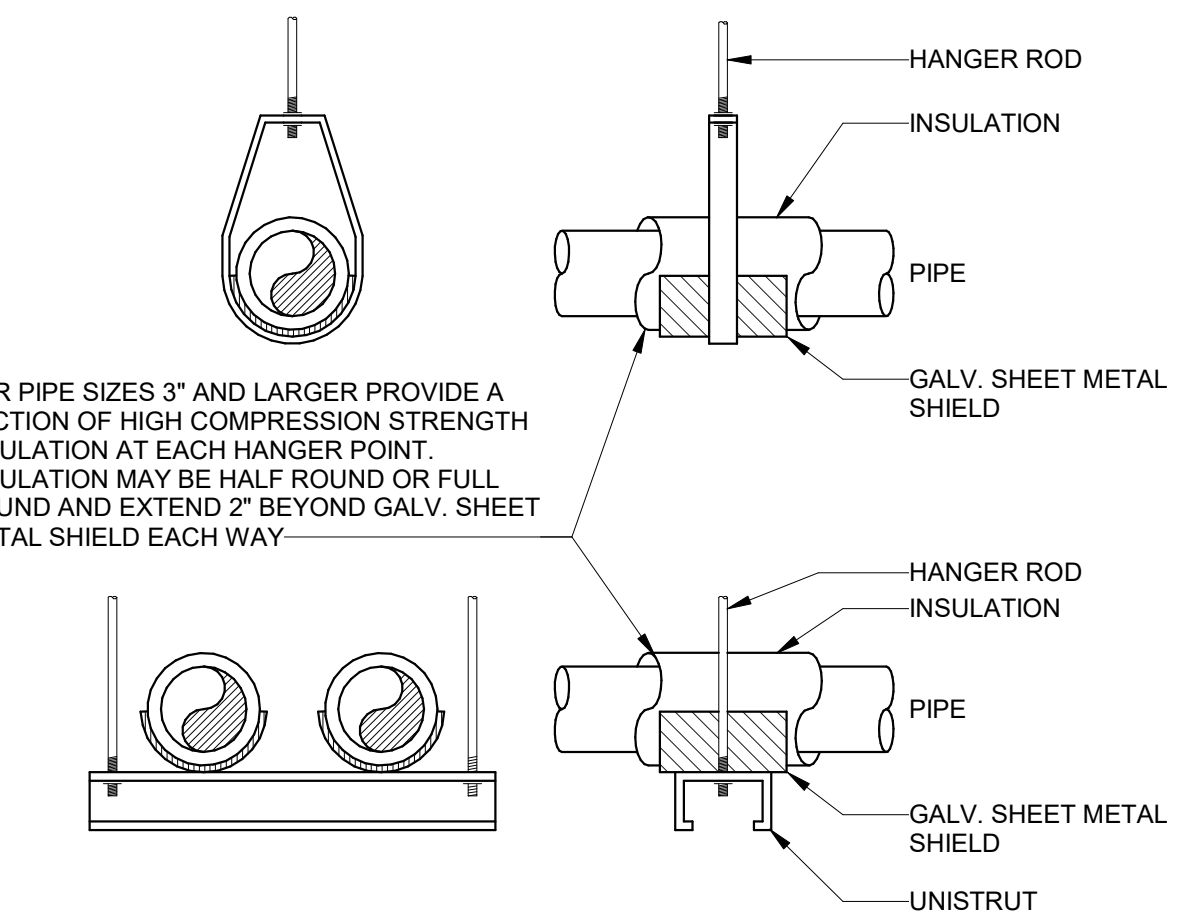
8 ELECTRIC WATER HEATER SUSPENDED ABOVE CEILING - EXTERIOR DISCHARGE

NOT TO SCALE



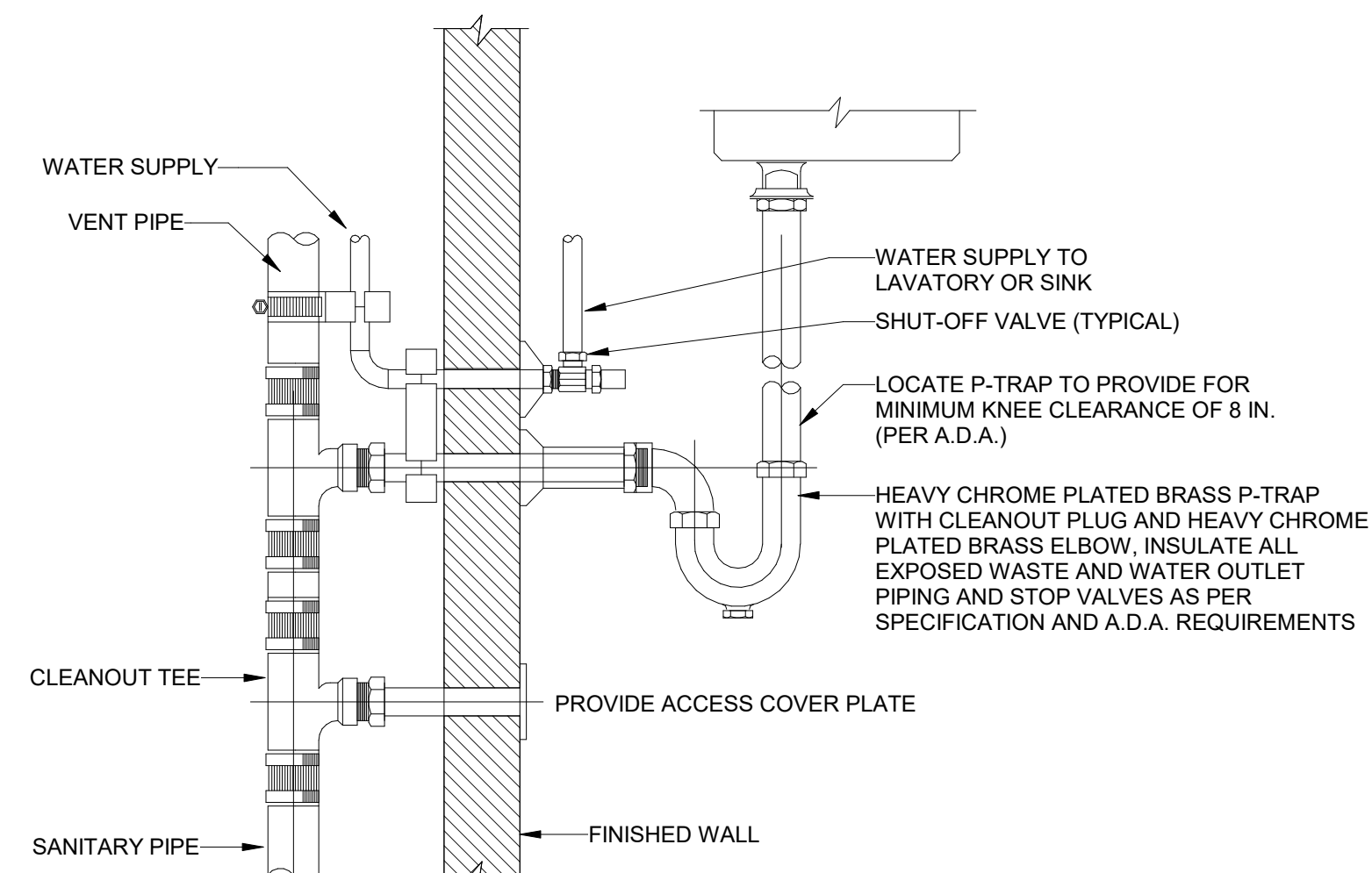
5 TRAP PRIMER ON SUPPLY LINE

NOT TO SCALE



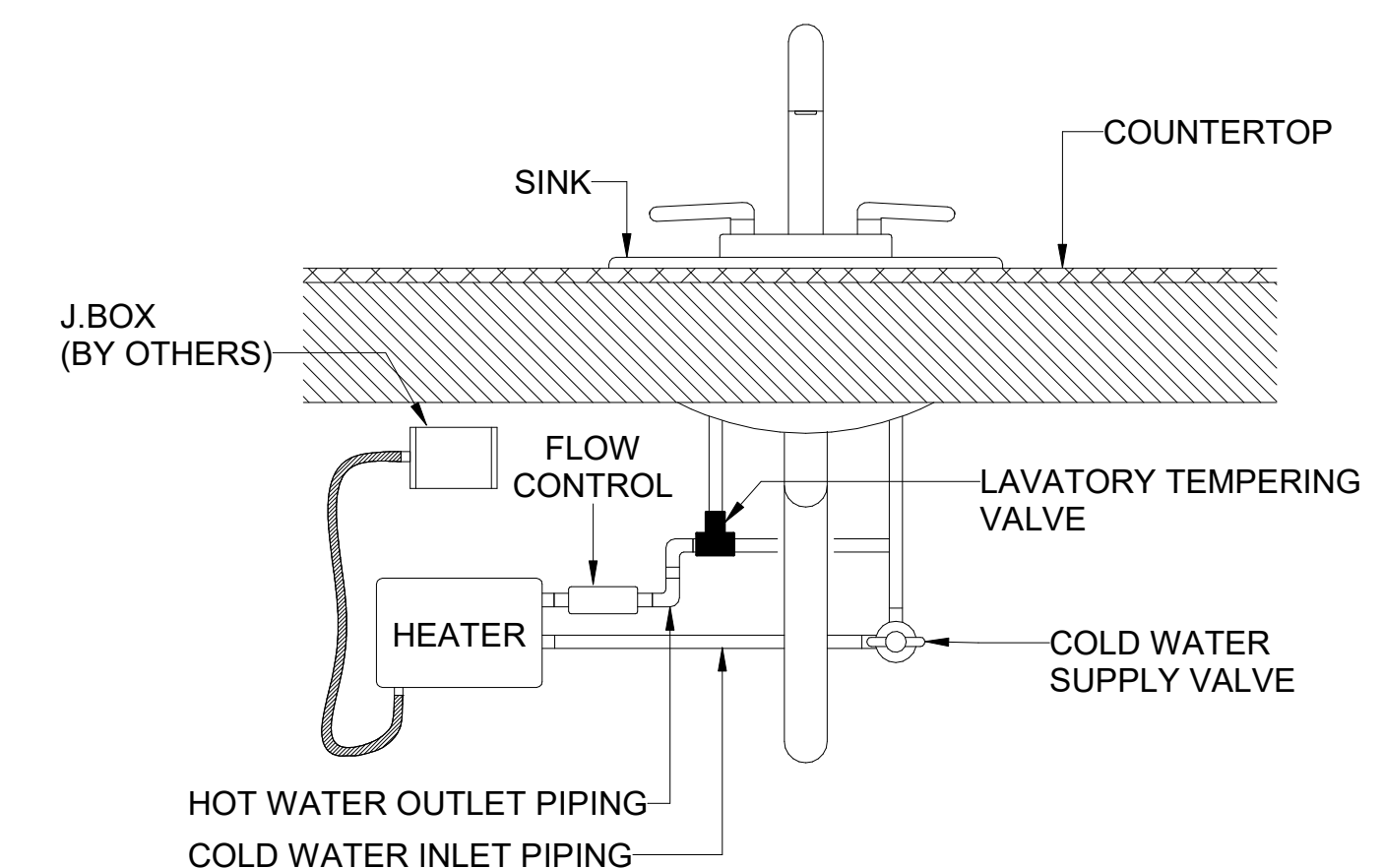
2 HANGERS FOR INSULATED PIPING

NOT TO SCALE



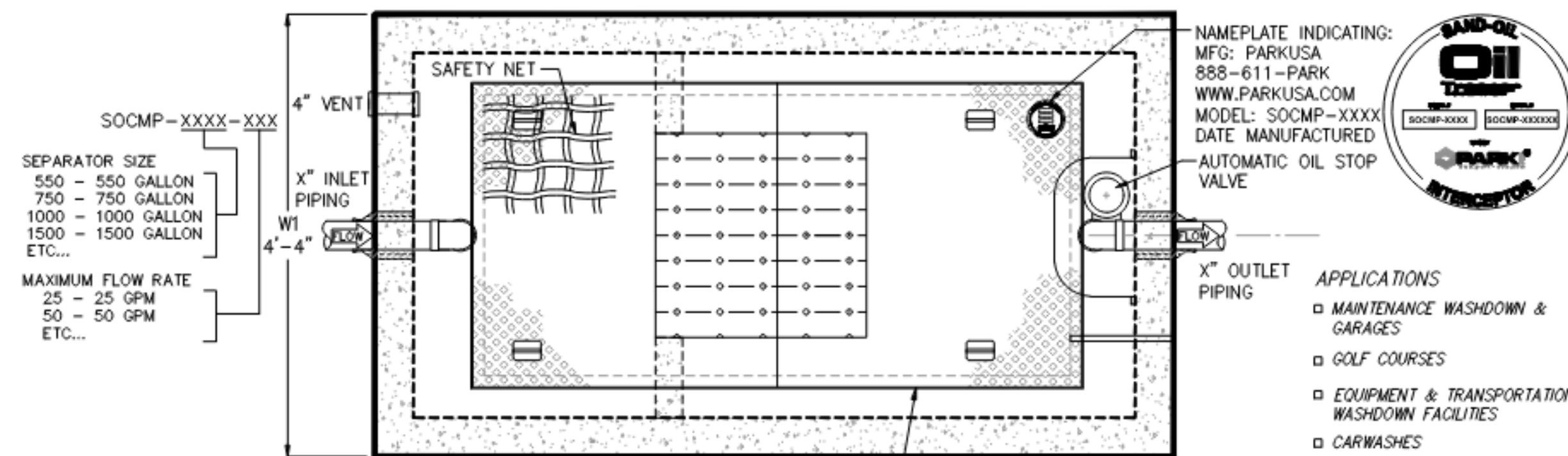
6 TYPICAL LAVATORY & SINK INSTALLATION

NOT TO SCALE



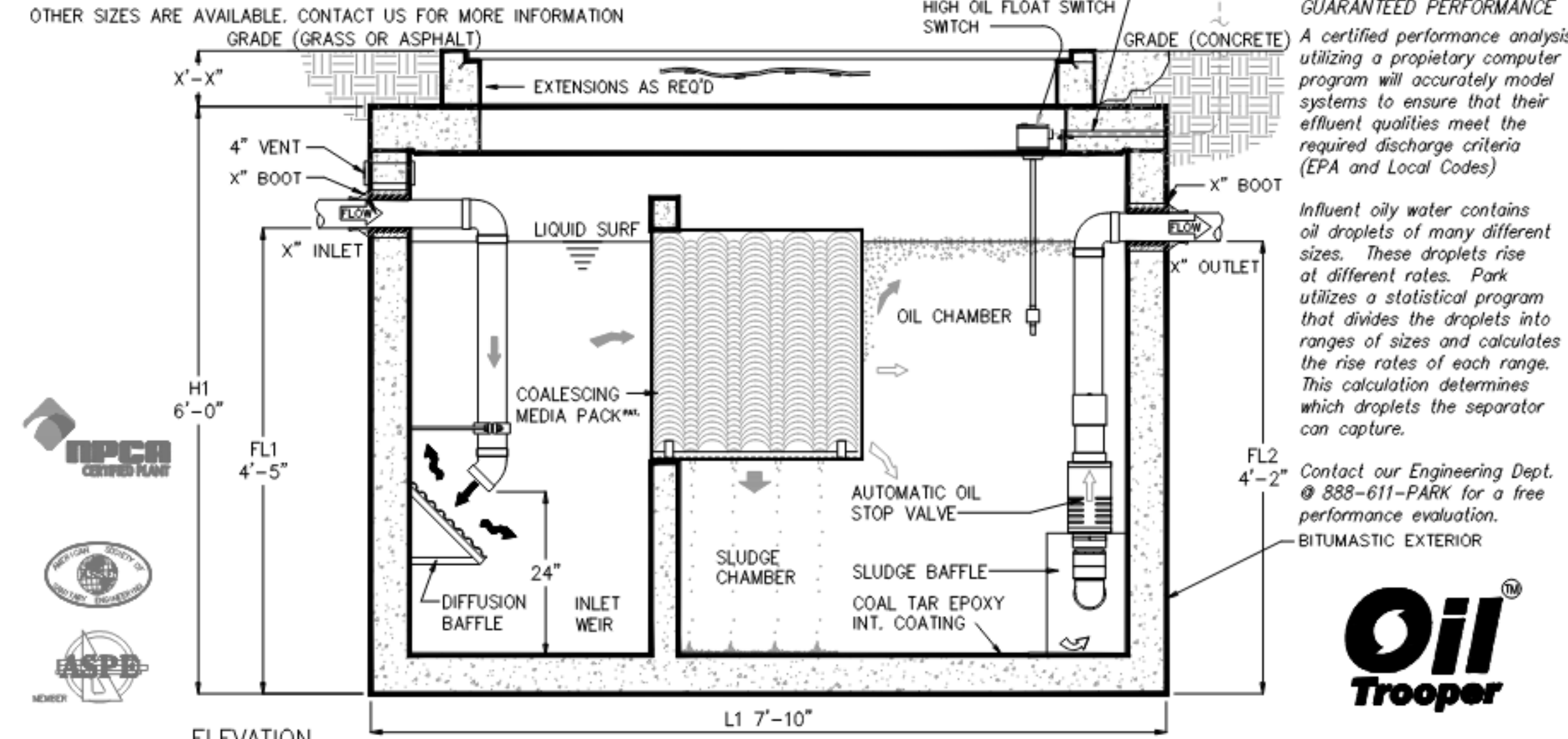
3 INSTA-HOT WATER HEATER DETAIL

NOT TO SCALE



SAND-OIL INTERCEPTOR SCHEDULE

MODEL NO.	CAPACITY USGal	OIL CAP. US (GAL)	EMPTY WT (LBS)	LENGTH L1	WIDTH W1	HEIGHT H1	INLET FL1	OUTLET FL2
SOCMP-500	500	250	9,500	7'-10"	4'-4"	4'-6"	3'-3"	3'-0"
SOCMP-750	750	375	9,900	7'-10"	4'-4"	6'-0"	4'-5"	4'-2"
SOCMP-1000	1,000	500	13,350	8'-8"	5'-0"	6'-0"	4'-9"	4'-6"
SOCMP-1500	1,500	750	16,050	9'-2"	5'-8"	7'-0"	5'-9"	5'-6"
SOCMP-2000	2,000	1,000	21,250	9'-2"	5'-8"	8'-0"	6'-11"	6'-8"



SPECIFICATIONS

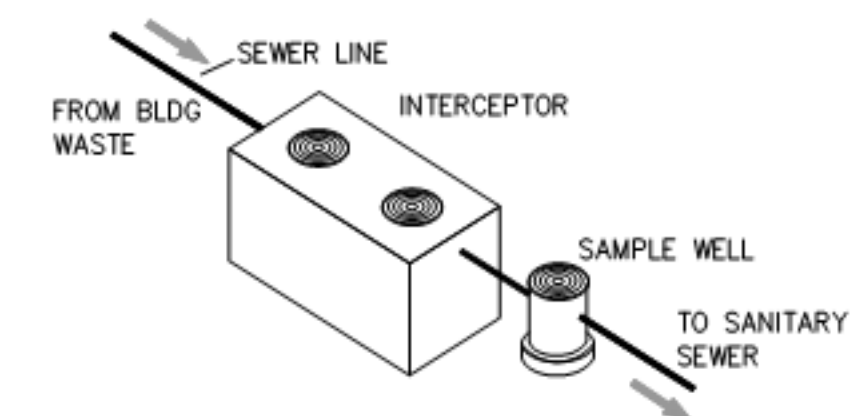
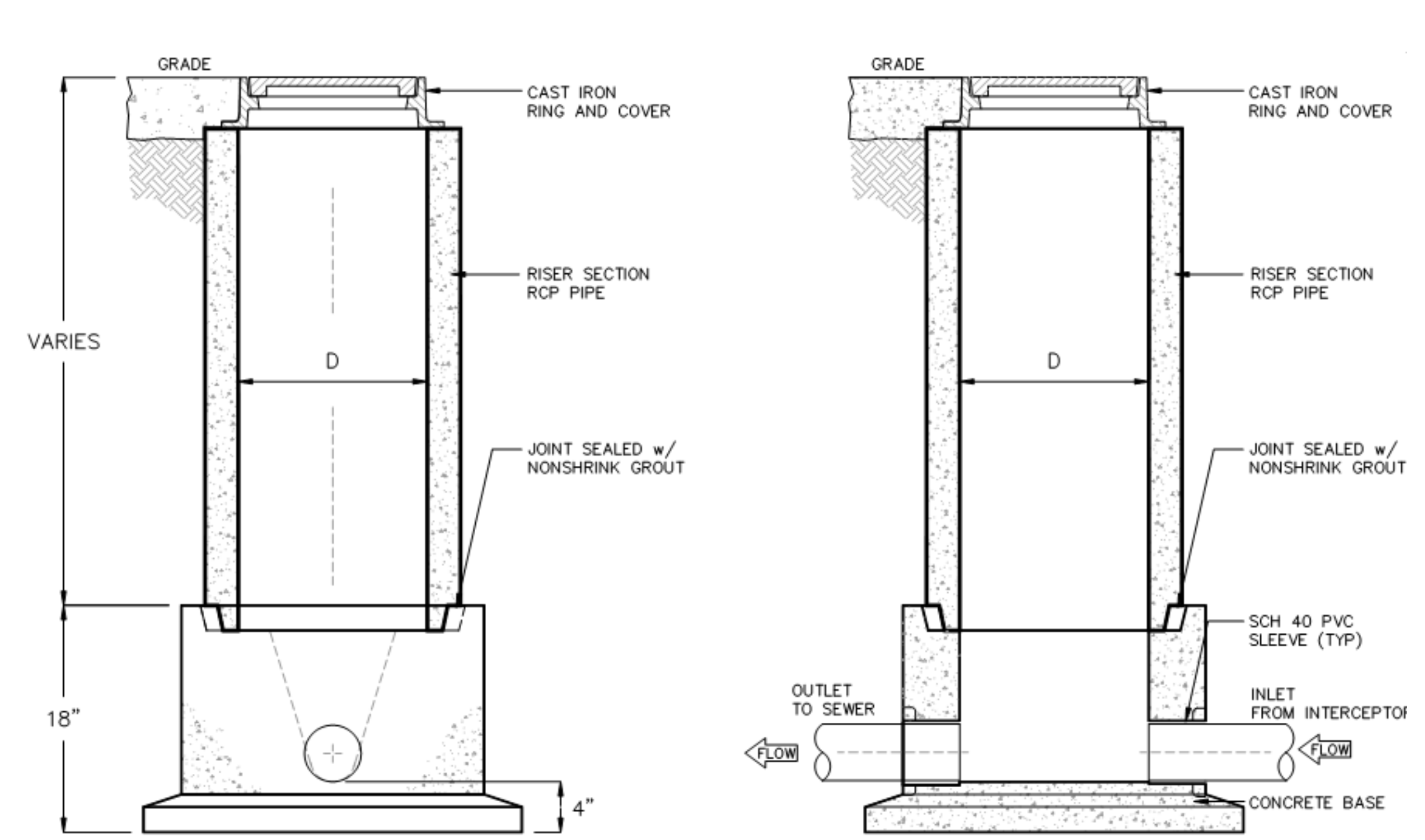
- CONCRETE: CLASS 1/II CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.
- REINFORCEMENT: GRADE 60 REINFORCED WITH STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
- MATERIALS: ACCESS FRAME & COVER SHALL BE FABRICATED WITH MIN. 1/4" THICK NONSKID FLOOR PLATE, BOLTDOWN, & LIFTING HANDLES. ALL MATERIALS TO BE CORROSION RESISTANT.

ENGINEERING DATA
INTERCEPTOR IS STRUCTURALLY AND HYDRAULICALLY ENGINEERED. NOMINAL TOTAL LIQUID CAPACITY AND OIL HOLDING CAPACITY AS INDICATED. RECOMMENDED FOR FLOW RATES OF 5 TO 200 GPM (CONSULT PARK FOR PROPER SIZING). MANUFACTURER SHALL SUBMIT PERFORMANCE CALCULATIONS FOR OIL & WATER SEPARATION CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER UPON REQUEST. FIELD EXCAVATION AND PREPARATION SHALL BE COMPLETED PRIOR TO DELIVERY OF INTERCEPTOR.

2 PARKUSA - SAND/OIL INTERCEPTOR
NOT TO SCALE

SAND-OIL INTERCEPTOR SCHEDULE

MANUFACTURER (OR EQUAL)	MODEL NO. (OR EQUAL)	CAPACITY US GAL.	OIL CAPACITY (LBS)	FLOW RATE (GPM)	EMPTY WEIGHT (LBS)	LENGTH (L)	WIDTH (W)	HEIGHT (H)	INLET (FL1)	OUTLET (FL2)
PARKUSA	SOCMP-500	500	250	50	9,500	7'-10"	4'-4"	4'-6"	3'-3"	3'-0"



NOTES

- SAMPLING WELL MUST BE INSTALLED UNDER A SEPARATE PLUMBING PERMIT.
- USE 15" FOR INSTALLATION 6'-0" DEEP AND LESS.
- USE 24" FOR INSTALLATION GREATER THAN 6'-0" DEEP. (STD RING AND M.H. COVER REQUIRED)
- SAMPLING WELL MUST BE SET IN A CIRCULAR OR SQUARE CONCRETE PAD (1'-0" GREATER THAN OUTSIDE DIAMETER OF PIPE.)
- INSIDE INSTALLATION NOT PERMITTED, WHERE OUTSIDE INSTALLATION IS POSSIBLE.
- INSTALLATION INSIDE BLDG MUST BE POURED IN PLACE (15"MIN) NO CONCRETE PIPE IS PERMITTED. (AIR-TIGHT COVER REQUIRED.)
- LAWN INSTALLATION MUST BE 4" ABOVE FINISHED GRADE.
- DRIVE & SIDEWALK INSTALLATION MUST BE BROUGHT TO FINISHED GRADE
- TO BE INSTALLED ON PRIVATE PROPERTY, IN AN ACCESSIBLE LOCATION TO CITY PERSONNEL.

SPECIFICATIONS

- CONCRETE: Class I/II concrete with of design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.
- C.I. CASTINGS: Cast iron rings and grates are manufactured of grey cast iron conforming to ASTM A48 Class 30, Heavy-Duty AASHTO H20/HL93

1 PARKUSA - CONSTANT FLOW SAMPLE WELL
NOT TO SCALE

SAMPLE WELL SCHEDULE

MANUFACTURER (OR EQUAL)	MODEL NO. (OR EQUAL)	DIAMETER "D"	IN & OUT PIPE SIZE	WIDTH "W"
PARKUSA	SWB-246	24"	6"	34"

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PM: Checker DE: Author
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SHEET:
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PLUMBING DETAILS

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PLUMBING FIXTURE SCHEDULE									
VERIFY PLUMBING FIXTURES WITH OWNER / ARCHITECT PRIOR TO ORDERING OR PURCHASING									
MARK	DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL # (OR EQUAL)	ACCESSORIES (OR EQUAL)	PLUMBING CONNECTIONS				
					CW	HW	SAN	VENT	
FD-1	DUCO CAST IRON BODY FLOOR DRAIN WITH FLASHING COLLAR AND 5" NICKEL BRONZE ROUND ADJUSTABLE STRAINER HEAD	JAY R. SMITH MFG. CO.	2005A-03-05-NB	TRAP PRIMER CONNECTION	---	---	3"	2"	
FD-2	DUCO CAST IRON BODY FLOOR DRAIN WITH FLASHING COLLAR AND 5" NICKEL BRONZE ROUND ADJUSTABLE STRAINER HEAD	JAY R. SMITH MFG. CO.	2005A-04-05-NB	TRAP PRIMER CONNECTION	---	---	4"	2"	
GCO-1	EXTERIOR CLEANOUT, UNFINISHED AREA, ROUND CAST IRON TOP - TRACTOR COVER AND VANDAL PROOF CENTER SECURING SCREW, HEAVY TRAFFIC LOAD	JAY R. SMITH MFG. CO.	4240-04-U		---	---	4"	---	
HB-1	BRONZE QUARTER TURN NON-FREEZE HYDRANT WITH HOSE CONNECTION, INTEGRAL VACUUM BRAKER, LOOSE T HANDLE KEY, AND SQUARE RECESSED STAINLESS STEEL BOX	JAY R. SMITH MFG. CO.	5509QT-06		3/4"	---	---	---	
L-1	WALL MOUNTED VITREOUS CHINA BASIN LAVATORY, BARRIER FREE (ADA APPROVED), 3-HOLES AT 4" CENTERSET, FRONT OVERFLOW, GRID STRAINER. PROVIDE TRUEBRO INSULATION AND CARRIER	AMERICAN STANDARD "LUCERNE"	0356.015	DELTA FAUCET #35996LF (0.5 GPM), POWERS TEMPERING VALVE #LFG480 (SET @ 105F), McGUIRE CHROME PLATED HEAVY CAST BRASS WITH CLEANOUT P-TRAP, McGUIRE CHROME PLATED BRASS STOPS WITH BRASS STEMS COMPLYING ANSI NSF 61, SEC 9	1/2"	1/2"	2"	2"	
RF-1	REFRIGERATOR WALL BOX - GALVANIZED WALL BOX, CW CONNECTION ONLY, BALL VALVE STOP	GUY GRAY	BIM875AB		1/2"	---	---	---	
SK-1	SELF-RIMMING SINGLE COMPARTMENT, CENTERED DRAIN LOCATION, 3 HOLES ON 4" CENTERS, OVERALL SIZE: 25" L x 22" W x 8" DEEP, STAINLESS STEEL WITH BRUSH SATIN FINISH, BACKLEDGE	ELKAY "CELEBRITY"	CR2521	ELKAY FAUCET #LK100 (1.5 GPM), ELKAY STRAINER #LK35, McGUIRE STOPS AND P-TRAP	1/2"	1/2"	2"	2"	
SOI-1	OIL TROOPER - OIL/WATER INTERCEPTOR OIL WATER INTERCEPTOR MODEL SOCMP-500 TO INCLUDE: PRECAST CONCRETE CONSTRUCTION, W/ BOTTOM RISER, INTERIOR BAFFLE W/ COALESCING MEDIA PAK W/ SS CARRIER, INLET/OUTLET PIPING, & FLAT CONCRETE TOP W/ H-20 TRAFFIC RATED SECTIONAL COVERS. (RATED FOR 50 GPM)	PARK USA	SOCMP-500		SEE PLANS				
SW-1	CONSTANT FLOW LINE SAMPLE WELL, MONOLITHIC CONCRETE CONSTRUCTED FIRST STAGE WITH RPC RISERS AS NEEDED, TRAFFIC DUTY MANHOLE RING COVER	PARK USA	SWB		SEE PLANS				
WB-1	WASHER BOX, FULLY RECESSED 20 GAUGE GALVANIZE STEEL RIGHT SIDE DRAIN WITH HOT AND COLD WATER HOSE BIBBS (BOTTOM MOUNTED)	GUY GRAY	FB-200		1/2"	1/2"	2"	2"	
WC-1	FLOOR MOUNTED HIGH EFFICIENCY (1.28GPF) TWO PIECE PRESSURE ASSIST TANK TOILET ELONGATED BOWL, VITREOUS CHINA, 12" ROUGH-IN. VERIFY TRIP-LEVEL LOCATION	AMERICAN STANDARD "CADET"	2467.100	BEMIS #1955SCT HVY DUTY OPEN FRONT TOILET SEAT, DOUBLE WAX RINGS	1/2"	---	4"	2"	

ELECTRIC WATER HEATER												
MARK	LOCATION	DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL # (OR EQUAL)	MIN. ACTIVATION GPM	TANK SIZE (GAL.)	ENTER WATER TEMP.	LEAVING WATER TEMP.	ELEMENT WATTAGE	VOLT	PH	ACCESSORIES (OR EQUAL)
EW-1	BREAKROOM 110	TANKLESS WATER HEATER WITH RUGGED, VANDAL RESISTANT CAST ALUMINUM HOUSING. FAUCET FLOW CONTROL, 3/8" COMPRESSION FITTINGS AND MINIMUM ACTIVATION FLOW RATE 0.20 GALLONS PER MINUTE @ 99% ENERGY EFFICIENT. FACTORY PRESENT AT 120° F.	CHRONOMITE	CM-40L/277	0.2	TANKLESS	65 °F	115 °F	11080 W	277 V	1	NIBCO WEBSTONE #EXP TWH SERVICE VALVES
EW-2	RESTROOM 111	TANKLESS WATER HEATER WITH RUGGED, VANDAL RESISTANT CAST ALUMINUM HOUSING. FAUCET FLOW CONTROL, 3/8" COMPRESSION FITTINGS AND MINIMUM ACTIVATION FLOW RATE 0.20 GALLONS PER MINUTE @ 99% ENERGY EFFICIENT. FACTORY PRESENT AT 120° F.	CHRONOMITE	CM-20L/277	0.2	TANKLESS	65 °F	120 °F	5540 W	277 V	1	NIBCO WEBSTONE #EXP TWH SERVICE VALVES
EW-3	EQUIPMENT 108	(LOW BOY) COMMERCIAL LIGHT DUTY ELECTRIC WATER HEATER	A.O. SMITH "DURA-POWER"	DEL-10		10	65 °F	140 °F	1500 W	120 V	1	WATTS #LNF36-M1 VACUUM RELIEF VALVE AND AMTROL THERM-X-TROL EXPANSION TANK #ST-5, HOLDRITE EQUIPMENT PLATFORM

PLUMBING ACCESSORY SCHEDULE				
MARK	LOCATION	DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL # (OR EQUAL)
BP-1	EQUIPMENT 108	1-1/2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY	WATTS	LF009-QT
BP-2	EQUIPMENT 108	2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY	WATTS	LF009-QT

PLUMBING MATERIAL SCHEDULE	
SERVICE PIPE	MATERIALS
DOMESTIC WATER PIPING	ASTM B88 TYPE "L" COPPER
DOMESTIC WATER PIPING (BELOW SLAB)	ASTM B88 TYPE "K" COPPER - JOINT FREE
SANITARY WASTE PIPING	ASTM A888 CAST IRON NO-HUB PIPE W/ ASTM C1540 HEAVY DUTY CLAMPS
SANITARY WASTE PIPING (BELOW SLAB)	ASTM D1785 SCHEDULE 40 PVC W/ DWV FITTINGS CONFORMING WITH D1785 AND D2665
SANITARY VENT PIPING	ASTM A888 CAST IRON NO-HUB PIPE W/ ASTM C1540 HEAVY DUTY CLAMPS
SANITARY VENT PIPING (BELOW SLAB)	ASTM D1785 SCHEDULE 40 PVC W/ DWV FITTINGS CONFORMING WITH D1785 AND D2665
STORM DRAIN PIPING	ASTM A888 CAST IRON NO-HUB PIPE W/ ASTM C1540 HEAVY DUTY CLAMPS
STORM DRAIN PIPING (BELOW SLAB)	ASTM A74 CAST IRON - BELL AND SPIGOT OR ASTM D1784 SCHEDULE 40 PVC W/ DWV FITTINGS CONFORMING WITH D1785 AND D2665

REVISIONS:
 108-06-22 ISSUE FOR PERMIT
 A 108-06-28 IFC

PM: CFC DE: JPC

PROJECT:
 792208473

SHEET:
P-601
 PLUMBING
 SCHEDULES