

ABBREVIATIONS			
& L @ # # (R) (N) A.F.F. A.D. ADJ. AGGR. AL APPROX. ARCH. ASB. ASPH. BD. BITUM. BLDG. BLKG. BM. BOT. CAB. CEM. CER. C.I. CLG. CLKG. CLO. CLR./CL. C.O. COL. CONC. CONN. CONSTR. CONT. CTSK. CNTR. CTR. DBL. DEPT. DET. DIA. DIM. DISP. DN. D.O. DOR. DWR. D.W. E. E.A. E.J. EL. ELEC. E.P. EQ. EQPT. EXST. EXP. EXT. F.E. F.F. FDN. FIN. FLASH'G FLUORESCENT F.O.C. F.O.F. F.O.S. FRFR. F.S. FT. FTG. FURR. FUT. G.A. GALV. GL. GRM. GYP. G.W.B. H.B. H.C. HWD. HDWE. H.M. HORIZ. HR. HT.	AND ANGLE AT CENTERLINE DIAMETER OF ROUND POUND OR NUMBER EXISTING RELOCATED NEW ABOVE FINISH FLOOR AREA DRAIN ADJUSTABLE AGGREGATE ALUMINUM APPROXIMATE ARCHITECTURAL ASBESTOS ASPHALT BOARD BITUMINOUS BUILDING BLOCKING BEAM BOTTOM CABINET CEMENT CERAMIC CAST IRON CEILING CAULKING CLOSET CLEAR CASED OPENING COLUMN CONCRETE CONNECTION CONSTRUCTION CONTINUOUS COUNTERSUNK COUNTER CENTER DOUBLE DEPARTMENT DETAIL DIAMETER DIMENSION DISPENSER DOWN DOOR OPENING DRAWER DOWNSPOUT DRAWING EAST EACH EXPANSION JOINT ELEVATION ELECTRICAL ELECTRICAL PANELBOARD EQUAL EQUIPMENT EXISTING EXPANSION EXT. FIRE EXTINGUISHER FLOOR FINISH FOUNDATION FINISH FLASHING FLUORESCENT FACE OF CONCRETE FACE OF FINISH FACE OF STUD FIREPROOF FLOOR SINK FOOT OR FEET FOOTING FURRING FUTURE GAUGE GALVANIZED GLASS GRADE GALVANIZED SHEET METAL GYPSUM GYPSUM WALL BOARD HOSE BIBB HOLLOW CORE HARDWOOD HARDWARE HOLLOW METAL HORIZONTAL HOUR HEIGHT	I.D. INSUL. INT. JOINT KIT. LAM. LAV. LT. L.E.D. MAX. M.C. MECH. MEMB. MTL. MFR. MIN. MIR. MISC. M.O. MTD. MUL. NORTH N.I.C. NO. OR # NOM. N.T.S. O.A. OBS. O.C. O.D. OFF. OPNG. OPP. PL. P.LAM. PLAS. PLYWD. PR. PT. PTN. QUARRY TILE QSR R OR RAD. R.D. REF. REFR. RSTR. REINF. REQ'D RESIL. R.M. R.O. R.W.L. S. S.C. SCHED. S.D. SECT. SH. SHR. SHT. SIM. SPEC. S.Q. S.S. STD. STL. STOR. STR.L. SYM. T.B.S. T.B. T.C. TEL. TER. T&G THK. T.P. T.P.D. T.V. T.W. TYP. UNF. U.N.O. VERT. V.C.T. W. W.B. W.C. WD. W/O WP. WSC.T. WT.	INSIDE DIAMETER INSULATION INTERIOR KITCHEN LAMINATE LAVATORY LIGHT LIGHT EMITTING DIODE MAXIMUM MECHANICAL MEMBRANE METAL MANUFACTURER MINIMUM MIRROR MISCELLANEOUS MASONRY OPENING MOUNTED MULLION NOT IN CONTRACT NUMBER NOMINAL NOT TO SCALE OVERALL OBSCURE ON CENTER OUTSIDE DIAMETER OFFICE OPENING OPPOSITE PLATE PLASTIC LAMINATE PLASTER PLYWOOD PAIR POINT PARTITION QUARRY TILE QUICK SERVE RESTAURANT RADIUS ROOF DRAIN REFERENCE REFRIGERATOR REGISTER REINFORCED REQUIRED RESILIENT ROOM ROUGH OPENING RAIN WATER LEADER R.W.L. S SOLID CORE SCHEDULE SOAP DISPENSER SECTION SHELF SHOWER SHEET SIMILAR SPECIFICATION SQUARE STAINLESS STEEL STANDARD STEEL STORAGE STRUCTURAL SYMMETRICAL TO BE SPECIFIED TREAD TOWEL BAR TOP OF CURB TELEPHONE TERRAZZO TONGUE & GROOVE THICK TOP OF PAVEMENT TOILET PAPER DISPENSER TELEVISION TYPICAL UNFINISHED UNLESS NOTED OTHERWISE VERTICAL VINYL COMPOSITE TILE WEST WITH WALL BASE WATER CLOSET WOOD WITHOUT WATERPROOF WAINSCOT WEIGHT

SYMBOLS	
SECTION MARK	
EXTERIOR ELEVATION TAG	
ELEVATION TAG	
ELEVATION MARK	
FINISH TAG	
WINDOW TAG	
DOOR TAG	
WALL TAG	
KEYED NOTE	



BP WEST COAST PRODUCTS, LLC

ARCO 3400 am/pm

1402 S MERIDIAN

PUYALLUP, WA 98371

- GENERAL PROJECT NOTES
1.

ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE BUILDING CODES AND LOCAL RESTRICTIONS. CONTRACTORS MUST COMPLY WITH CONTRACTOR REGISTRATION REQUIREMENTS OF ALL GOVERNING AUTHORITIES. THE GENERAL BUILDING PERMITS SHALL BE PAID FOR BY THE OWNER UNLESS AGREED OTHERWISE. ALL OTHER PERMITS SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR DIRECTLY RESPONSIBLE. ALL REQUIRED CITY, COUNTY AND/OR STATE LICENSES SHALL BE ACQUIRED AND PAID FOR BY THE INDIVIDUAL SUBCONTRACTOR.

2.

IT IS THE INTENT OF THE OWNER, THE ARCHITECT AND THEIR CONSULTANTS, THAT ALL WORK DEPICTED IN THESE DRAWINGS AND SPECIFICATIONS IS TO BE PROVIDED BY THE GENERAL CONTRACTOR. ANY REFERENCES TO THE CONTRARY THROUGHOUT THE CONSTRUCTION DOCUMENTS OR SPECIFICATIONS IS NOT INTENDED. ADDITIONALLY, CONTRACTOR IS TO REFER TO THE BID DOCUMENT PACKET AND/OR OWNER'S SCOPE OF WORK DOCUMENT(S) WHICH SHALL TAKE PRECEDENCE OVER SCOPE THAT MAY BE PRESENTED IN THIS SET OF CONSTRUCTION DOCUMENTS OR SPECIFICATIONS. THE SCOPE OF WORK DOCUMENT IS INTENDED TO IDENTIFY ALL OWNER SUPPLIED ITEMS OR WORK PROVIDED BY OTHERS. ABSENCE OF THESE DOCUMENTS MEANS ALL WORK NOTED IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR UNLESS THE OWNER HAS SPECIFIED OTHERWISE DURING THE BID PROCESS.

3.

APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION AS THE APPROVED PLANS. CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF PLANS ON THE PREMISES IN GOOD CONDITION AT ALL TIMES. THIS SHALL INCLUDE ALL ADDENDA AND CHANGE ORDERS.

4.

DISCREPANCIES BETWEEN PORTIONS OF THE CONTRACT DOCUMENTS, DRAWINGS AND SPECIFICATIONS ARE NOT INTENDED. THE CONTRACTOR IS TO CLARIFY ANY SUCH DISCREPANCIES WITH THE ARCHITECT OR PROJECT MANAGER PRIOR TO COMMENCING WORK. STATED DIMENSIONS TAKE PRECEDENCE OVER GRAPHICS, DO NOT SCALE DRAWINGS TO DETERMINE LOCATIONS. THE ARCHITECT OR PROJECT MANAGER SHALL BE NOTIFIED OF ANY SUCH DISCREPANCIES PRIOR TO CONTINUING WITH WORK.

5.

IT IS THE INTENT OF THE ARCHITECT THAT THIS WORK BE IN CONFORMANCE WITH ALL REQUIREMENTS OF THE BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS TYPE OF CONSTRUCTION AND OCCUPANCY. THE CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF CONFLICTS WITH GOVERNING CODE REQUIREMENTS BEFORE PROCEEDING FURTHER WITH THE AFFECTED WORK.

6.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES AND TO PROTECT THEM FROM DAMAGE. CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THE WORK.

7.

THE CONTRACTOR TO PROVIDE FIRE SPRINKLER SYSTEM AND ALARM SYSTEM (WHEN REQUIRED BY CODE AND NOTED AS REQUIRED BY THESE PLANS) IN ACCORDANCE WITH NFPA REQUIREMENTS. FIRE SPRINKLER CONTRACTOR IS TO SUBMIT COMPLETE SHOP DRAWINGS, LAYOUT AND RELATED DATA TO BUILDING DEPARTMENT AND FIRE MARSHAL FOR APPROVAL PRIOR TO INSTALLATION.

8.

FOR CONSTRUCTION DETAILS NOT SHOWN, USE THE MANUFACTURER'S APPROVED SHOP DRAWINGS/DATA SHEETS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE IN THE WORK EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

9.

THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL FOOD SERVICE EQUIPMENT AND COORDINATE LOCATION OF ALL UTILITIES INCLUDING FLOOR SINKS, FLOOR DRAINS, SLOPES/SLAB DEPRESSIONS AND RAISED CURBS, ELECTRICAL AND PLUMBING AND SUBROUTS FOR FUTURE EQUIPMENT WHERE NOTED.

10.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE JOB IS IN PROGRESS AND UNTIL BUILDING IS OCCUPIED.

11.

ALL DEBRIS SHALL BE REMOVED FROM PREMISES REGULARLY AND ALL AREAS SHALL BE LEFT IN A CLEAN (BROOM) CONDITION AT ALL TIMES.

12.

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE OCCUPANTS AND WORKERS AT ALL TIMES.

13.

CONTRACTOR SHALL PROVIDE TEMPORARY WATER, POWER, TELEPHONE, FACSIMILE OR METHOD TO RECEIVE E-MAIL, PRINTER AND TOILET FACILITIES AS REQUIRED.

14.

GENERAL CONTRACTOR IS RESPONSIBLE FOR RECEIVING, UNLOADING, UN-CRATING, INSTALLATION AND HOOKUP OF ALL FOOD SERVICE EQUIPMENT AND OTHER OWNER OR VENDOR FURNISHED ITEMS.

15.

GENERAL CONTRACTOR IS REQUIRED TO LABEL ALL ELECTRICAL PANELS, PLUMBING VALVES, AND ROOF TOP EQUIPMENT WITH PLASTIC PHENOLIC ENGRAVED PLATES ATTACHED TO IDENTIFY THE EQUIPMENT USE OR PURPOSE.

16.

CONTRACTOR SHALL SUPPLY, LOCATE AND BUILD INTO THE WORK ALL INSERTS, ANCHORS, ANGLES, PLATES, OPENINGS, SLEEVES, HANGERS, SLAB DEPRESSIONS AND PITCHES AS MAY BE REQUIRED TO ATTACH AND ACCOMMODATE OTHER WORK. SPECIAL INSPECTION REQUIREMENTS MAY APPLY TO ALL STRUCTURAL EMBEDMENTS OR POST INSTALLED ANCHORS. CONTRACTOR SHALL CONFIRM REQUIREMENTS PRIOR TO INSTALLATION.

17.

IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE MEANS AND METHODS FOR ERECTION PROCEDURE AND SEQUENCE OF THE CONSTRUCTION. CONTRACTOR TO INSURE THE SAFETY OF ALL INSTALLED IMPROVEMENTS, BUILDINGS AND THEIR COMPONENT PARTS DURING ERECTION.

18.

MATERIALS LISTED IN DRAWINGS ARE BASED ON DESIGN INTENT. ALTERNATE SPECIFICATIONS MAY BE ACCEPTED PROVIDED THEY CLOSELY MATCH AND ARE DEEMED EQUAL TO SPECIFIED MATERIAL. GENERAL CONTRACTOR IS TO SUBMIT PROPOSED SAMPLES OF SUBSTITUTIONS, ALONG WITH SAMPLE OF THAT SPECIFIED IN DRAWINGS FOR REVIEW BY THE ARCHITECT OR PROJECT MANAGER. SUBSTITUTIONS WILL ONLY BE APPROVED IF SPECIFIED MATERIAL IS PROVEN TO BE UNAVAILABLE WITHIN A REASONABLE TIME FRAME OR IF SUBSTITUTION IS A BENEFIT TO THE OWNER RELATED TO COST OR SCHEDULE TIME SAVINGS.

19.

THE PROJECT BOUNDARIES SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE OWNERS ATTENTION IMMEDIATELY BEFORE PROCEEDING WITH CONSTRUCTION.

20.

ALL LABOR, MATERIALS AND INSTALLATIONS MUST COMPLY WITH THE CODES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION WHICH DISCREPANCY WHICH EXISTS BETWEEN THE REQUIREMENTS BY THE PLANS, SPECIFICATIONS, SAID CODES, RULES AND REGULATIONS, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT, IN WRITING FOR RESOLUTION. IF ANY CHANGE IN THE PLANS AND / OR SPECIFICATIONS OCCURS AS A RESULT OF THE REQUIREMENTS OF THE LIFE SAFETY CODE (NFPA 101) OR ANY OTHER AUTHORITIES HAVING JURISDICTION AFTER THE SUBMISSION OF BIDS, THEN THE BIDDERS WILL BE GIVEN THE OPPORTUNITY TO ADJUST THEIR BIDS, IF NECESSARY, ONLY FOR THE CHANGE.

21.

THE CONTRACTOR SHALL COORDINATE THE WORK WITH MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ALL NECESSARY OPENINGS AND PENETRATIONS THROUGH WALLS, CEILING AND FLOORS.

22.

ALL EXPOSED PIPES, CONDUITS OR DUCTS IN FINISHES AREAS, WHETHER SHOWN ON DRAWINGS OR NOT, SHALL BE FURRED OUT WITH GYPSUM BOARD.

23.

LOCATION OF ACCESS DOORS SUPPLIED BY MECHANICAL TRADES AND INSTALLED BY OTHERS SHALL BE DETERMINED IN THE FIELD THROUGH COORDINATION OF TRADES. LOCATION OF LIGHT FIXTURES SHALL GOVERN POSITION OF DUCTS AND PIPES FOR WHICH ACCESS DOORS ARE REQUIRED. ACCESS DOORS SHALL NOT BE PLACED IN INACCESSIBLE POSITIONS OR IN THE WAY OF LIGHTS, GRILLS, REGISTERS, CONCEALED BY CASEWORK, ECT.

PROJECT DATA

PROJECT ADDRESS:
1402 SOUTH MERIDIAN,
PUYALLUP, WA 98371

ASSESSOR'S PARCEL NUMBER:
773000-028-1 & 773000-028-8: TITLE PARCEL A
773000-003-1 & 773000-002-1: TITLE PARCEL B

ZONING:
GENERAL COMMERCIAL (GC)

SITE AREA:
51,520 S.F. (1.18 AC)

BUILDINGS:
CONVENIENCE STORE

CONSTRUCTION TYPE: V-B (NON SPRINKLERED)
USE GROUP: M
GROSS AREA: 3,349 S.F.

CANOPY

CONSTRUCTION TYPE: II-B
USE GROUP: M
GROSS AREA: 6,321 S.F.

CAR WASH

CONSTRUCTION TYPE: V-B
USE GROUP: B
GROSS AREA: 1,158 S.F.

PARKING REQUIREMENTS

NO. OF SPACES REQUIRED: 1 SPACE PER 300 SQUARE FEET
3,349/300 = 11.16

NO. OF SPACES PROVIDED: 21

NO. OF ACCESSIBLE PARKING: 1 VAN ACCESSIBLE PER 1-25 AUTO STALLS

NO. OF BICYCLE PARKING: 1 PER 25 AUTO STALLS (2 PROVIDED)

NO. OF EV PARKING:
PER IBC WA AMENDMENT 429, M-OCCUPANCY IS EXEMPT FROM PROVIDING EV CHARGING INFRASTRUCTURE WHEN IT DOES NOT DESIGNATE EMPLOYEE PARKING. HOWEVER, TWO (2) EV PARKING SPACES ARE PROVIDED.

OCCUPANCY LOAD CALCULATION
SEE SHEET G1.3

PROJECT DIRECTORY

APPLICANT/DEVELOPER

BP PRODUCTS, NA
PO BOX 696049
SAN ANTONIO, TX 78269-9931
CONTACT: RANDALL ARNOLD
RANDALL.ARNOLD@BP.COM
PHONE

ARCHITECT

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: MONIKA UEHLIN
PHONE: 425-251-6222 EXT. 7491

CIVIL ENGINEER

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: ALEX WHITE
PHONE: 425-251-6222

LANDSCAPE ARCHITECT

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: JEFF VARLEY
PHONE: 425-251-6222

STRUCTURAL ENGINEER

PCS STRUCTURAL SOLUTIONS
811 FIRST AVENUE, SUITE 620
SEATTLE, WA
CONTACT: JACK PINKARD
PHONE: 206.292.5076

STRUCTURAL ENGINEER (CANOPY)

PERRY BUILDERS
12405LOCKSEY LANE
AUBURN, CA
CONTACT: LOGAN GRAVES
PHONE: 530-745-0580

PLUMBING, MECHANICAL ELECTRICAL ENGINEER

ABOSSEIN ENGINEERING LLC.
2100 11TH AVE NE
BELLEVUE, WA 98004
CONTACT: ALEX ABOSSEIN
PHONE: 425.462.9441

FUEL TANKS

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: OMAR VASQUEZ
PHONE: 425.251.6222

DEVELOPMENT CONTACTS

ZONING AND LAND USE

CITY OF PUYALLUP
PLANNING SERVICES
333 SOUTH MERIDIAN
PUYALLUP, WA 98371
253-864-4165

BUILDING

CITY OF PUYALLUP
BUILDING SERVICES/FIRE PROTECTION
333 SOUTH MERIDIAN
PUYALLUP, WA 98371
253-864-4165

ENVIRONMENTAL - FOOD

TACOMA-PIERCE COUNTY HEALTH DEPARTMENT
3629 S. D STREET
TACOMA, WA 98418
253-649-1706

STORMWATER, WATER QUALITY, SANITARY SEWER

CITY OF PUYALLUP
PUBLIC WORKS
1100 39TH AVENUE S.E.
PUYALLUP, WA 98371
253-841-5505

FIRE

SOUTH PIERCE COUNTY FIRE & RESCUE
902 7TH STREET N.W.
PUYALLUP, WA 98371
253-538-6402

ENVIRONMENTAL - FUEL

WASHINGTON STATE DEPARTMENT OF ECOLOGY
P.O. BOX 47655
OLYMPIA, STATE 98504
360-407-7382

AIR QUALITY

PUGET SOUND CLEAN AIR AGENCY
1904 THIRD AVENUE
SEATTLE, WA 98101
206-689-4063

ELECTRIC

WASHINGTON STATE DEPARTMENT OF LABOR AN INDUSTRIES (L&I)
P.O. BOX 44000
OLYMPIA, STATE 98504
360-902-5800

SCOPE OF WORK

CONSTRUCTION OF NEW 3,349 S.F. ARCO AM/PM CONVENIENCE STORE WITH 4,607 S.F. FUEL CANOPY (49'x94') WITH EIGHT (8) MULTI PRODUCT DISPENSERS, AND TWO (2) UNDERGROUND STORAGE TANKS. CAR WASH AND ASSOCIATED SITE IMPROVEMENTS.

PERMITTED SEPERATELY

• SIGNAGE UNDER SEPARATE PERMIT

• ELECTRICAL SHEETS ARE FOR REFERENCE ONLY - PERMIT WILL BE ISSUED BY L&I

PERMIT SUBMITTAL DATES

• 10/04/2023

PERMIT ISSUE DATES

ARCO APPROVAL DATES

APPLICABLE CODES

BUILDING CODE : 2018 INTERNATIONAL BUILDING CODE*

PLUMBING CODE: 2018 UNIFORM PLUMBING CODE*

ELECTRICAL CODE: 2018 NATIONAL ELECTRICAL CODE

MECHANICAL CODE: 2018 INTERNATIONAL MECHANICAL CODE AND INTERNATIONAL FUEL GAS CODE*

ENERGY CODE: 2018 WASHINGTON STATE ENERGY CODE

FIRE CODE: 2018 INTERNATIONAL FIRE CODE*

ACCESSIBILITY CODE: ICC/ANSI A117.1-2009

LOCAL CODES: PUYALLUP MUNICIPAL CODE

*AS AMENDED BY STATE AND LOCAL JURISDICTION

SITE VICINITY MAP

SITE KEY PLAN

INDEX OF DRAWINGS

C-STORE

GENERAL

G1.1 COVER SHEET

G1.2 ACCESSIBILITY DETAILS

G1.3 ACCESSIBILITY FLOOR PLAN

G1.6 C-STORE CODE ENERGY PLAN

SURVEY

1 OF 2 ALTA & NPS LAND TITLE SURVEY

2 OF 2 ALTA & NPS LAND TITLE SURVEY

LANDSCAPE

L1 LANDSCAPE PLAN

L2 LANDSCAPE NOTES AND PLANT SCHEDULE

L3 LANDSCAPE DETAILS

L4 IRRIGATION PLAN

L5 IRRIGATION DETAILS

L6 IRRIGATION DETAILS

ARCHITECTURAL

A10.0 ARCHITECTURAL SITE PLAN

A1.1 CONSTRUCTION FLOOR PLAN

A1.2 FLOOR FINISH PLAN

A1.3 REFLECTED CEILING PLAN

A1.4 ROOF PLAN

A2.1 EXTERIOR ELEVATIONS

A2.3 INTERIOR ELEVATIONS

A2.4 INTERIOR ELEVATIONS

A2.5 INTERIOR ELEVATIONS

A2.6 INTERIOR ELEVATIONS AND ENLARGED RESTROOM PLAN

A2.7 GRAPHIC ELEVATIONS AND SCHEDULE

A3.1 BUILDING SECTIONS

A3.2 WALL SECTIONS

A3.3 WALL SECTIONS

A4.1 DETAILS

A4.2 DETAILS

A4.3 DETAILS

A5.1 DOOR AND WINDOW SCHEDULE

A7.1 ARCHITECTURAL SPECIFICATIONS

A7.2 ARCHITECTURAL SPECIFICATIONS

A7.3 ARCHITECTURAL SPECIFICATIONS

A7.4 ARCHITECTURAL SPECIFICATIONS

A7.5 ARCHITECTURAL SPECIFICATIONS

A7.6 ARCHITECTURAL SPECIFICATIONS

Q1.1 EQUIPMENT PLAN

Q1.2 COOLER PACKAGE

Q1.3 EQUIPMENT SCHEDULE

STRUCTURAL

S0.1 LOT LIGHT FOUNDATION

S1.1 FOUNDATION PLAN

S1.2 CEILING FRAMING PLAN

S1.3 ROOF FRAMING PLAN

S1.4 DETAILS

S2.2 DETAILS

S2.3 DETAILS

S2.4 DETAILS

S2.5 DETAILS

S2.6 DETAILS

S2.7 DETAILS

S2.8 DETAILS

S2.10 UNDERGROUND STORAGE TANK PLAN AND DETAILS

S2.11 EV CHARGING STATION DETAILS

S2.2 GENERAL NOTES

S2.3 GENERAL NOTES

S3.3 GENERAL NOTES

S3.4 GENERAL NOTES

MECHANICAL

M0.1 EQUIPMENT SCHEDULE, LEGEND AND NOTES

M0.2 MECHANICAL SPECIFICATIONS

M1.0 MECHANICAL FLOOR PLAN

M1.1 MECHANICAL ROOF PLAN

M2.0 MECHANICAL DETAILS

M2.1 MECHANICAL DETAILS

M2.2 MECHANICAL DETAILS

M2.3 MECHANICAL DETAILS

M2.4 MECHANICAL DETAILS

M2.5 MECHANICAL DETAILS

M2.6 MECHANICAL DETAILS

M2.7 MECHANICAL DETAILS

M2.8 MECHANICAL DETAILS

M2.9 MECHANICAL DETAILS

M2.10 MECHANICAL DETAILS

ELECTRICAL

E0.1 LEGEND, NOTES AND SCHEDULES

E0.2 SPECIFICATIONS

E1.0 LIGHTING PLAN

E1.1 LUMINAIRE SCHEDULE

E1.2 POWER PLAN

E1.3 EQUIPMENT & RECEPTACLE SCHEDULES

E1.4 ELECTRICAL ROUGH-IN PLAN

E1.5 ELECTRICAL ROOF PLAN

E1.6 COMMUNICATION PLAN

E2.0 SINGLE LINE DIAGRAM

E2.1 ELECTRICAL PANEL SCHEDULES

E2.2 ELECTRICAL PANEL SCHEDULES

E2.3 DIAGRAMS & DETAILS PART 1

E3.1 DIAGRAMS & DETAILS PART 2

E4.0 FAULT CURRENT & ARC FLASH SCHEDULES

E5.0 ELECTRICAL SITE PLAN

E5.1 ELECTRICAL SITE DETAILS

PLUMBING

P0.1 PLUMBING LEGEND, SCHEDULES & CALCULATIONS

P0.2 GENERAL NOTES & CALCULATIONS

P0.3 PLUMBING SPECIFICATIONS

P1.0 PLUMBING ROUGH-IN PLAN

P1.1 SANITARY DRAINAGE & VENT PLUMBING PLAN

P1.2 DOMESTIC WATER SUPPLY PLUMBING PLAN

P1.3 PLUMBING ROOF PLAN

P2.0 RISER DIAGRAMS

P4.0 PLUMBING DETAILS I

P4.1 PLUMBING DETAILS II

P4.2 PLUMBING DETAILS III

FUELING

G0.0 TITLE SHEET AND DRAWING INDEX

G0.2.0 UNDERGROUND TANK AND PIPING SITE PLAN AND INSTALLATION NOTES

G0.2.1 TANK & PIPING SCOPE OF WORK & GENERAL NOTES (PP 1 OF 2)

G0.2.2 TANK & PIPING SCOPE OF WORK & GENERAL NOTES (PP 2 OF 2)

G0.5 DESIGN INTENT MISCELLANEOUS DETAILS

G0.6.1 DESIGN INTENT: NEW VENT STACK INSTALLATION DETAILS

G0.7.1 TANK FILL & VAPOR RISER STATIC GROUNDING DETAILS (STANDARD)

M5.1.01 TANK AND PIPING MATERIALS LIST (1 OF 2)

M5.1.02 TANK AND PIPING MATERIALS LIST (2 OF 2)

M5.1.04 TANK INSTALLATION DETAILS

M5.1.15 TYPICAL 30 DIA. 12,000/10,000 GALLON DOUBLE WALL FIBERGLASS TANK INSTALLATION DETAILS

M5.1.28 UST INSTALLATION (2) 10" DIA. 25K/22K BLENDING

M5.1.30 SINGLE UST GASOLINE TANK SUMP FITTING DETAILS

M5.1.33 DIESEL TANK SUMP & FITTING INSTALLATION DETAILS (STANDARD OPW)

M5.1.34 FUEL VAPOR II INSTALLATION DETAILS (STANDARD OPW)

M5.1.38 DISPENSER DETAILS: WAYNE ORATORION (V40) BLENDING DISPENSER INSTALLATION DETAILS ON ISLANDS

M5.1.40 DISPENSER DETAILS: WAYNE ORATORION (3+1) BLENDING DISPENSER INSTALLATION DETAILS ON ISLANDS

M5.1.41 TANK SLAB CONCRETE SPECIFICATIONS & IDENTIFICATION MARKING DETAILS

M5.1.42 ELECTRICAL FUELING SITE PLAN & CLASS 1, DIVISION 1 AND 2 HAZARDOUS AREA PLAN

M5.1.43 FUEL SYSTEM ELECTRICAL CONDUIT POINT TO POINT PLAN

M5.1.44 WAYNE DISPENSER SCHEMATICS LEAK DETECTION AND CAT'S NOTES

M5.1.45 VEEDEE ROXIT 450 AND FE PETRO INTERFACE FIELD WIRING DIAGRAM (SINGLE MASTER)


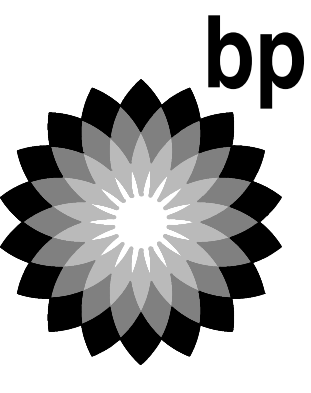
M5.1.47 ELECTRICAL UNITIZED FUELING MANAGER CABINET ELEVATIONS AND DETAILS

M5.1.48 ELECTRICAL PANEL E-STOP CONTROL WIRING SCHEMATIC AND TYPICAL FUELING ELEVATION

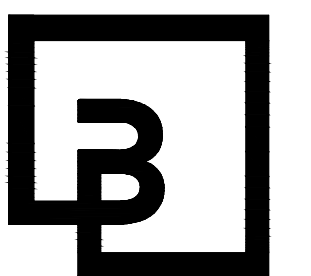
M5.1.49 ELECTRICAL LOW VOLTAGE DISCONNECT FOR DATA/INTERCOM/MEDIA WIRING DIAGRAMS

M5.1.50 EMERGENCY SHUTDOWN SCHEMATIC FUELING CONTROLS W/VCV

CLIENT:



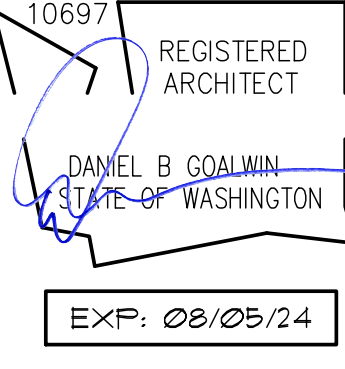
BP WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
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SEAL:


DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY: ALLIANCE 240M:

CHECKED BY: BP REPM:

DRAWN BY: ALLIANCE PM:

VERSION: PROJECT NO: 21730

DRAWING TITLE:

COVER SHEET

SHEET NO:

G1.1

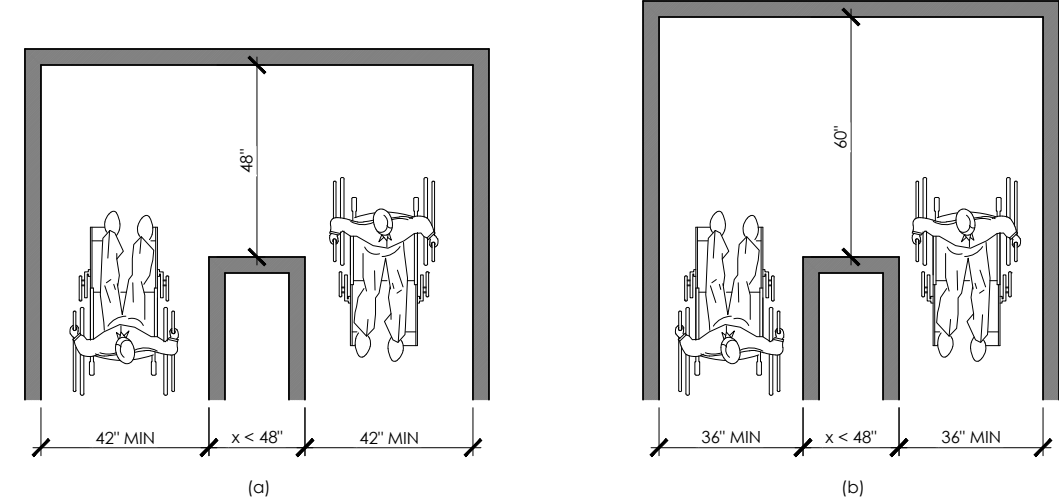


FIG. 403.5.1
CLEAR WIDTH AT 180° TURN

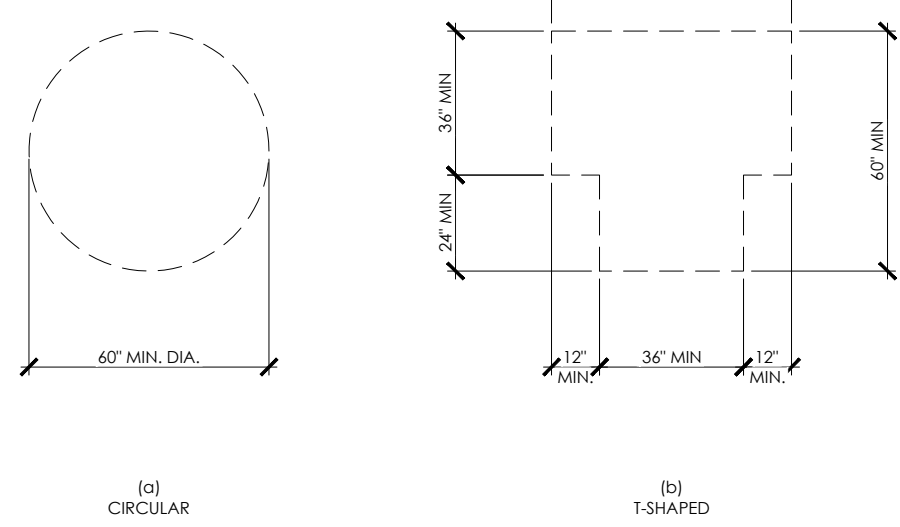


FIG. 304.3
SIZE OF TURNING SPACE

21

TURNING SPACE

SCALE: NOT TO SCALE

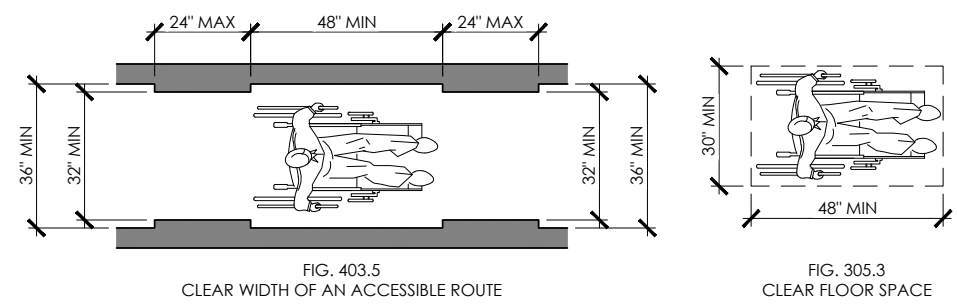


FIG. 403.5
CLEAR WIDTH OF AN ACCESSIBLE ROUTE

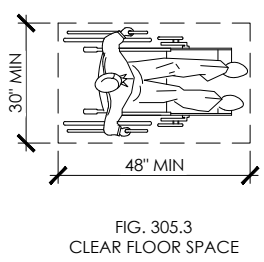


FIG. 305.3
CLEAR FLOOR SPACE

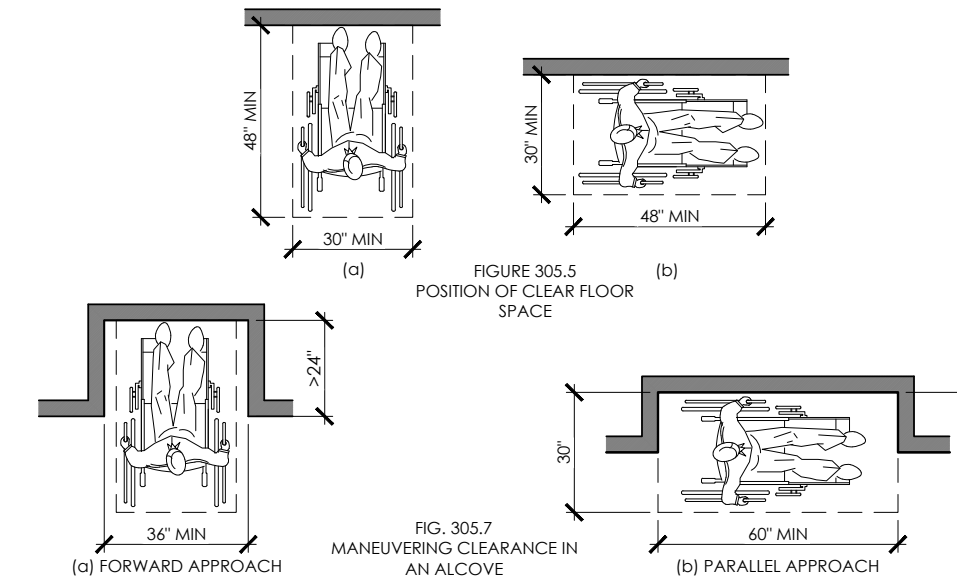


FIGURE 305.5
POSITION OF CLEAR FLOOR SPACE

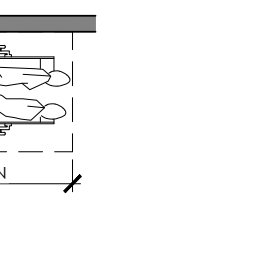


FIG. 305.7
MANEUVERING CLEARANCE IN AN ALCOVE

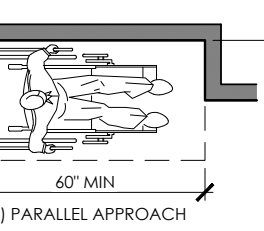


FIG. 305.7
MANEUVERING CLEARANCE IN AN ALCOVE

20

MINIMUM CLEAR FLOOR SPACE

SCALE: NOT TO SCALE

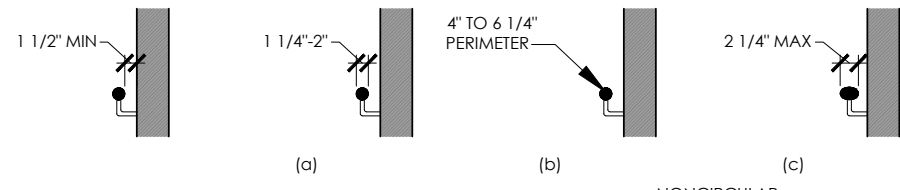


FIG. 505.5
HANDRAIL CLEARANCE

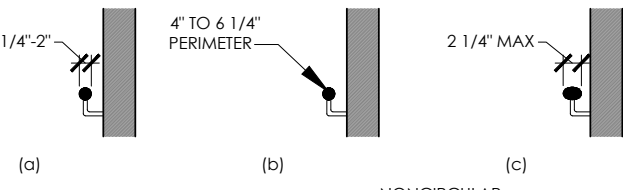


FIG. 505.7
HANDRAIL CROSS SECTION

15

HANDRAIL CLEARANCE

SCALE: NOT TO SCALE

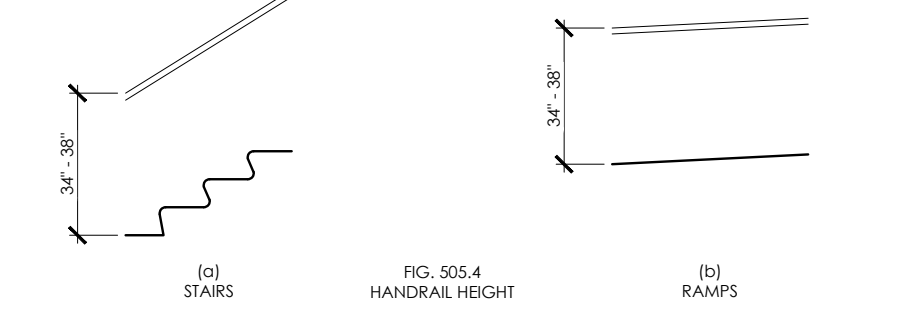


FIG. 505.4
HANDRAIL HEIGHT

14

HANDRAILS

SCALE: NOT TO SCALE

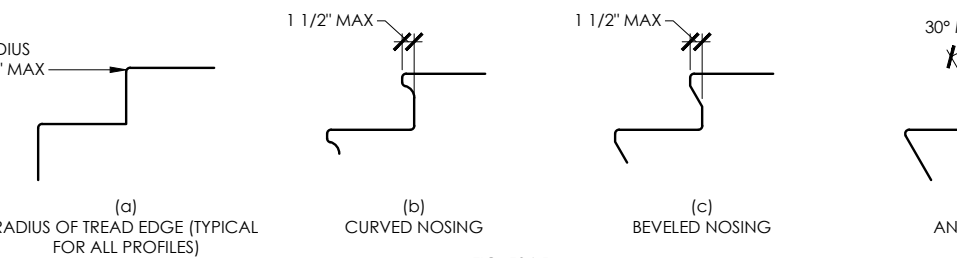


FIG. 304.5
STAR NOSINGS

19

TREAD WIDTH/ NOSINGS

SCALE: NOT TO SCALE

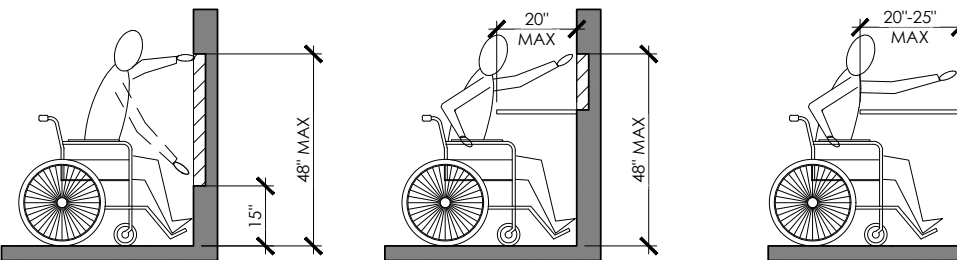


FIG. 308.2.1
UNOBSTRUCTED FORWARD REACH

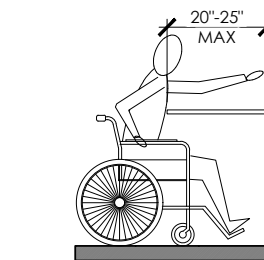


FIG. 308.2.2
OBSTRUCTED HIGH FORWARD REACH

18

FORWARD REACH

SCALE: NOT TO SCALE

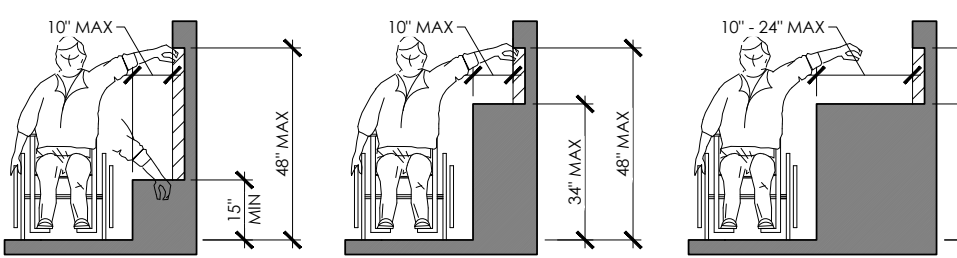


FIG. 308.3.1
OBSTRUCTED SIDE REACH

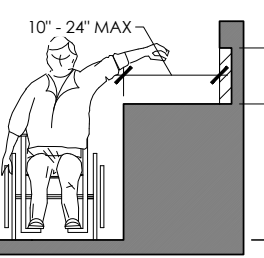


FIG. 308.3.2
OBSTRUCTED HIGH SIDE REACH

17

SIDE REACH

SCALE: NOT TO SCALE

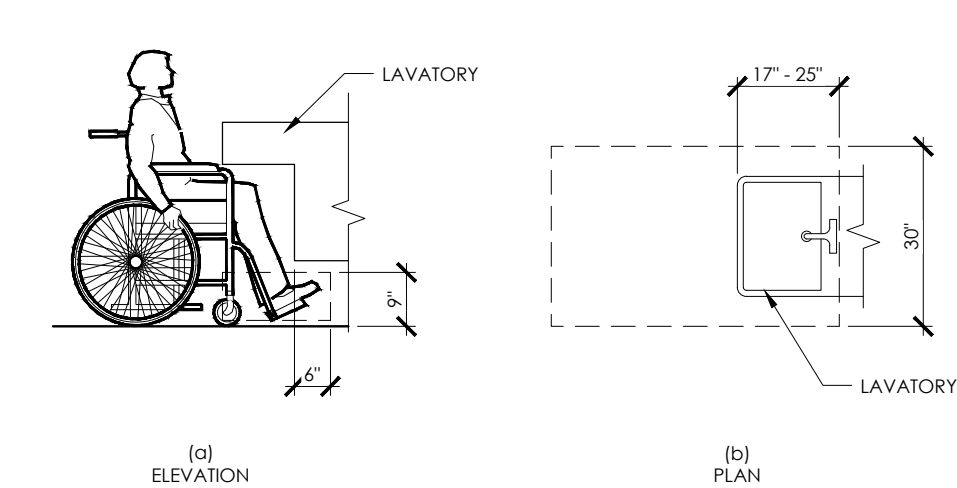


FIG. 304.2
TOE CLEARANCE

16

LAVATORY KNEE & TOE CLEARANCES

SCALE: NOT TO SCALE

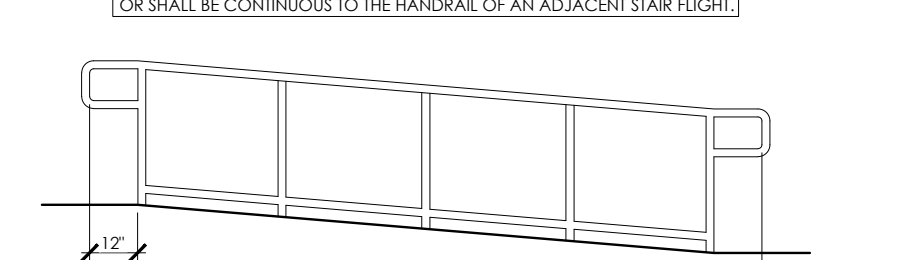


FIG. 405.9.2
RAMP EDGE PROTECTION

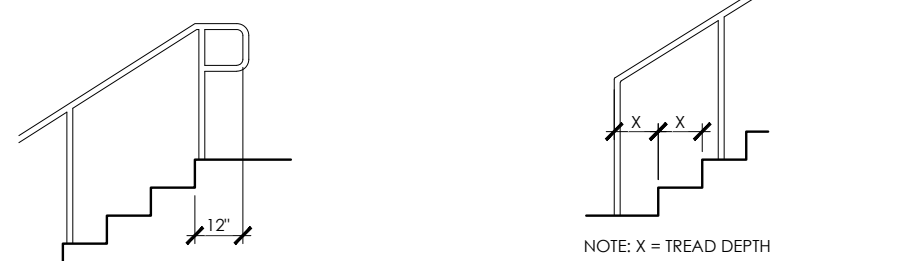


FIG. 405.9.1
EXTENDED FLOOR SURFACE

13

HANDRAILS

SCALE: NOT TO SCALE

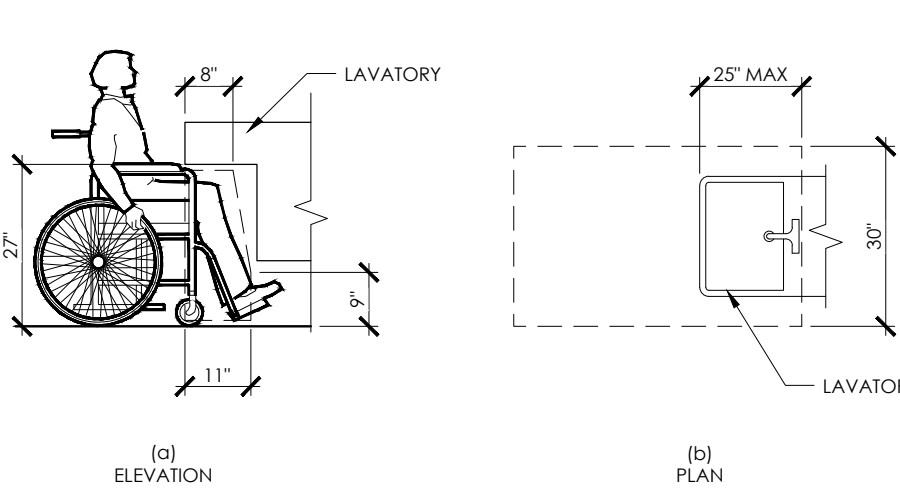


FIG. 505.10.1
TOP & BOTTOM HANDRAIL EXTENSION AT RAMPS

10

TACTILE SIGNS

SCALE: NOT TO SCALE



FIG. 602.5
DRINKING FOUNTAIN SPOUT LOCATION (H/L/O CONFIGURATION SHOWN)

9

DRINKING FOUNTAIN

SCALE: NOT TO SCALE

8

DOOR CLEARANCES

SCALE: NOT TO SCALE

7

GRAB BAR SPACING

SCALE: NTS

6

URINAL HEIGHT & CLEARANCE

SCALE: NTS

5

WHEELCHAIR TOE CLEARANCE

SCALE: NOT TO SCALE

4

GRAB BAR & PROTRUDING DISPENSER @ WATER CLOSET

SCALE: NOT TO SCALE

3

HEIGHT OF RAISED CHARACTERS

SCALE: NOT TO SCALE

2

DOORS IN A SERIES

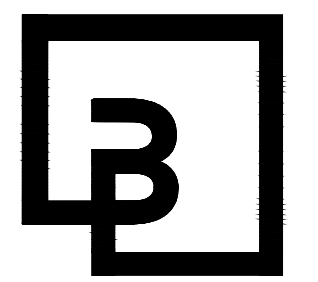
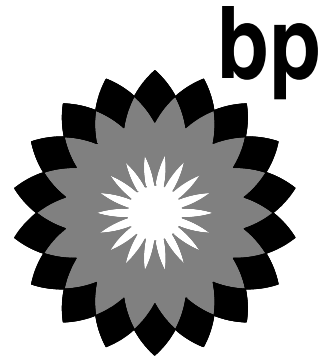
SCALE: NOT TO SCALE

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WATER CLOSET & TOILET COMPARTMENT

SCALE: NOT TO SCALE

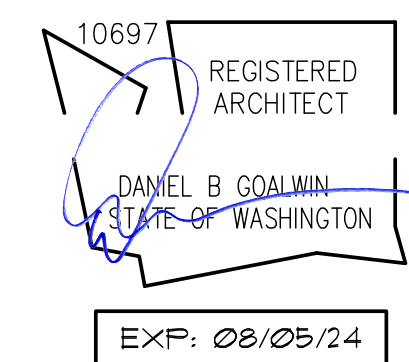
CLIENT:



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98571

FACILITY #7184

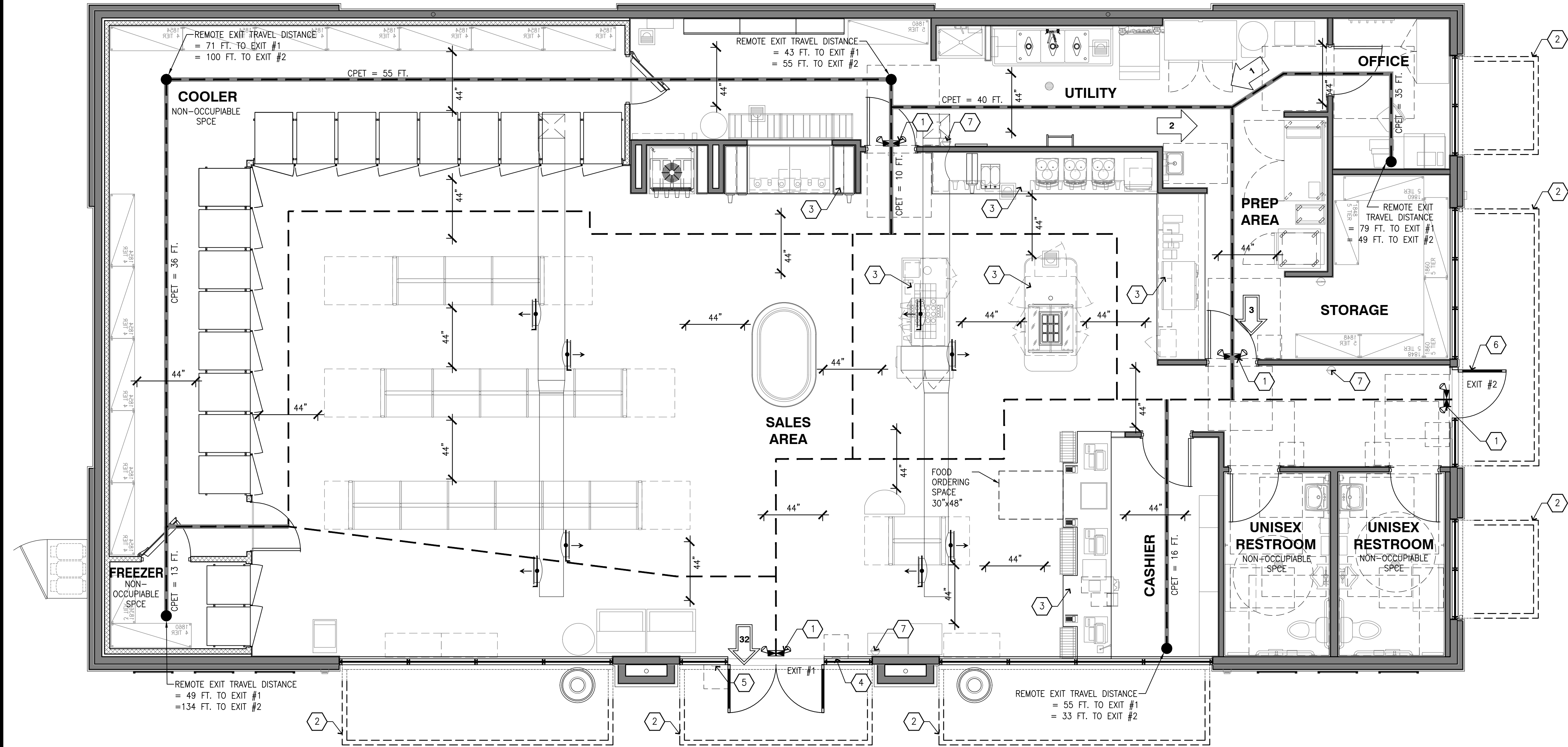
DESIGNED BY: ALLIANCE T&M
CHECKED BY: BP REP
DRAWN BY: ALLIANCE PM
VERSION: PROJECT NO: 21730

DRAWING TITLE:

ACCESSIBILITY
DETAILS

SHEET NO:

G1.2



01 EGRESS/ACCESSIBILITY FLOOR PLAN
SCALE: 1/4"=1'-0"

EXIT REQUIREMENTS

- EXIT SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED.
- EXIT SIGNS ILLUMINATED BY AN EXTERNAL SOURCE SHALL HAVE AN INTENSITY OF NOT LESS THAN 5 FOOT CANDLES.
- INTERNALLY ILLUMINATED SIGNS SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION AND CBC SECTION 2702.
- EXIT SIGNS SHALL BE ILLUMINATED AT ALL TIMES.
- EXIT SIGNS SHALL BE CONNECTED TO AN EMERGENCY POWER SYSTEM THAT WILL PROVIDE AN ILLUMINATION OF NOT LESS THAN 90 MIN. IN CASE OF PRIMARY POWER LOSS.
- EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT. SEE 1008.1.8.3 FOR EXCEPTIONS.
- DOOR HANDLES, LOCK AND OTHER OPERATING DEVICES SHALL BE INSTALLED AT A MIN. 34" AND A MAX. 48" ABOVE THE FINISHED FLOOR.
- THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED
- ALL EGRESS DOOR OPERATION SHALL ALSO COMPLY WITH SECTION 1008.1.8 - 1008.1.8.6.
- THE MEANS OF EGRESS, INCLUDING THE EXIT DISCHARGE, SHALL BE ILLUMINATED AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED.
- THE MEANS OF EGRESS ILLUMINATION LEVEL SHALL NOT BE LESS THAN 1 FOOT-CANDLE AT THE WALKING SURFACE
- THE POWER SUPPLY FOR MEANS OF EGRESS ILLUMINATION SHALL NORMALLY BE PROVIDED BY THE PREMISES' ELECTRICAL SUPPLY. IN THE EVENT OF POWER SUPPLY FAILURE, AN EMERGENCY ELECTRICAL SYSTEM SHALL AUTOMATICALLY ILLUMINATE THE FOLLOWING AREAS:
 - aisles and unenclosed egress stairways in rooms and spaces that require two or more means of egress
 - corridors, exit enclosures and exit passageways in buildings required to have two or more exits.
- EXTERIOR EGRESS COMPONENTS AT OTHER THAN THE LEVEL OF EXIT DISCHARGE UNTIL EXIT DISCHARGE IS ACCOMPLISHED FOR BUILDINGS REQUIRED TO HAVE TWO OR MORE EXITS.
- INTERIOR EXIT DISCHARGE ELEMENTS, AS PERMITTED IN SECTION 1024.1, IN BUILDINGS REQUIRED TO HAVE TWO OR MORE EXITS.
- EXTERIOR LANDINGS, AS REQUIRED BY SECTION 1008.1.5, FOR EXIT DISCHARGE DOORWAYS IN BUILDINGS REQUIRED TO HAVE TWO OR MORE EXITS.
- THE EMERGENCY POWER SYSTEM SHALL PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT OR AN ON-SITE GENERATOR. THE INSTALLATION OF THE EMERGENCY POWER SYSTEM SHALL BE IN ACCORDANCE WITH SECTION 2702.
- EMERGENCY LIGHTING FACILITIES SHALL BE ARRANGED TO PROVIDE INITIAL ILLUMINATION THAT IS AT LEAST AN AVERAGE OF 1 FOOT-CANDLE (11 LUX) AND A MINIMUM AT ANY POINT OF 0.1 FOOT-CANDLE (1 LUX) MEASURED ALONG THE PATH OF EGRESS. AT FLOOR LEVEL, ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOT-CANDLE (6 LUX) AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOT-CANDLE (0.6 LUX) AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40:1 SHALL NOT BE EXCEEDED.

EMERGENCY EGRESS LIGHTING

ELECTRICAL CONTRACTOR SHALL VERIFY THE FOLLOWING PRIOR TO INSTALLING NEW EMERGENCY LIGHTING AND PROVIDE THIS INFORMATION ON THEIR PERMIT SUBMITTAL PLANS:
EMERGENCY LIGHTING SHALL BE ARRANGED TO PROVIDE AN INITIAL ILLUMINATION THAT IS AT LEAST AVERAGE OF 1 FOOT-CANDLE AND A MINIMUM AT ANY POINT OF 0.1 FOOT-CANDLE MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOT-CANDLES AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOT-CANDLES AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40:1 SHALL NOT BE EXCEEDED.
EMERGENCY POWER SYSTEM SHALL BE PROVIDED FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR.

CODE ANALYSIS:

IBC CHAPTER 2, OCCUPIABLE SPACE
A ROOM OR ENCLOSED SPACE DESIGNED FOR HUMAN OCCUPANCY IN WHICH THE INDIVIDUALS CONGREGATE FOR AMUSEMENT, EDUCATIONAL OR SIMILAR PURPOSES OR IN WHICH OCCUPANTS ARE ENLARGED IN LABOR.

IBC SECTION 504.1, BUILDING HEIGHT AND NUMBER OF STORIES
ALLOWABLE BUILDING HEIGHT AND NUMBER OF STORIES SHALL BE DETERMINED BASED ON THE TYPE OF CONSTRUCTION, OCCUPANCY CLASSIFICATION AND AUTOMATIC SPRINKLERS.

* ASSUME AN OCCUPANCY WITH GROUP "M", MERCANTILE, WITH TYPE VB CONSTRUCTION AND NON-SPRINKLERED

IBC TABLE 504.3, ALLOWABLE BUILDING HEIGHT
MAXIMUM ALLOWABLE HEIGHT, GROUP M: 40 FEET

IBC TABLE 504.4, ALLOWABLE STORIES
MAXIMUM NUMBER OF STORIES, GROUP M: 1 STORY

IBC SECTION 506.1, BUILDING AREA
ALLOWABLE BUILDING AREA SHALL BE DETERMINED BASED ON THE TYPE OF CONSTRUCTION, OCCUPANCY CLASSIFICATION, AUTOMATIC SPRINKLERS AND THE AMOUNT OF BUILDING FRONTAGE ON A PUBLIC WAY.

IBC TABLE 506.2, ALLOWABLE BUILDING AREA
MAXIMUM ALLOWABLE AREA, GROUP M: 9,000 SQUARE FEET

* TOTAL PROPOSED BUILDING AREA: 3,216 SQUARE FEET

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

TABLE 601, FIRE RESISTANCE RATING FOR BUILDING ELEMENTS
FOR TYPE V-B CONSTRUCTION IN HOURS
PRIMARY STRUCTURAL FRAME: 0
EXTERIOR BEARING WALLS: 0
INTERIOR BEARING WALLS: 0
EXTERIOR NON-BEARING WALLS: 0
INTERIOR NON-BEARING WALLS: 0
FLOOR CONSTRUCTION: 0
ROOF CONSTRUCTION: 0

IBC TABLE 1004.1.2, FLOOR AREAS PER OCCUPANT
SEE PLAN ABOVE FOR OCCUPANCY CALCULATIONS.

IBC SECTION 1006.2.1, EGRESS BASED ON OCCUPANT LOAD
TWO EXITS OR EXIT ACCESS DOORWAYS SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR COMMON PATH OF EGRESS TRAVEL EXCEEDS THE VALUES IN TABLE 1006.2.1

IBC TABLE 1006.2.1, SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY
A SPACE IN AN "M" OCCUPANCY WITH AN OCCUPANT LOAD OF 49 OR LESS AND A COMMON PATH OF EGRESS TRAVEL OF 75 FEET IS ALLOWED TO HAVE ONLY ONE EXIT.

* THE TOTAL OCCUPANT LOAD FOR THE C-STORE IS 32 OCCUPANTS. THE COMMON PATH OF EGRESS TRAVEL IS LESS THAN 75 FEET. ONE EXIT IS ALLOWED

CODE ANALYSIS cont.:

IBC SECTION 1008.2.1, ILLUMINATION LEVEL UNDER NORMAL POWER
AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, FACILITIES, ELEMENTS AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.

IBC SECTION 1008.3.1, EMERGENCY POWER FOR ILLUMINATION
IN THE EVENT OF POWER FAILURE, AN EMERGENCY ELECTRICAL SYSTEM SHALL ILLUMINATE THE FOLLOWING AREAS:
AISLES, CORRIDORS, EXIT ACCESS STAIRWAYS AND RAMPS.

IBC SECTION 1009.1, ACCESSIBLE MEANS OF EGRESS
ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS. WHERE MORE THAN ONE MEANS OF EGRESS ARE REQUIRED, EACH ACCESSIBLE PORTION OF THE SPACE SHALL HAVE NOT LESS THAN TWO ACCESSIBLE MEANS OF EGRESS.

IBC SECTION 1010.1.1, SIZE OF DOORS
THE MINIMUM WIDTH OF EACH DOOR OPENING SHALL BE SUFFICIENT FOR THE OCCUPANT LOAD AND SHALL PROVIDE A CLEAR WIDTH OF 32 INCHES MINIMUM.

IBC SECTION 1010.1.2.1, DIRECTION OF SWING
DOORS SHALL SWING IN THE DIRECTION OF TRAVEL WHERE SERVING A ROOM OR AREA CONTAINING AN OCCUPANT LOAD OF 50 OR MORE PERSONS.

IBC SECTION 1010.1.9, DOOR OPERATIONS
EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

IBC SECTION 1013.1, EXIT SIGNS, WHERE REQUIRED
EXITS AND EXIT ACCESS DOORS SHALL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF TRAVEL.
EXCEPTION 1: EXIT SIGNS ARE NOT REQUIRED IN ROOMS OR AREAS THAT REQUIRE ONLY ONE EXIT OR EXIT ACCESS.

IBC SECTION 1013.4, RAISED CHARACTER AND BRAILLE EXIT SIGNS
A SIGN STATING "EXIT" IN RAISED CHARACTERS AND BRAILLE AND COMPLYING WITH ICC ANSI A117.1 SHALL BE PROVIDED ADJACENT TO EACH EXIT DISCHARGE DOOR.

IBC TABLE 1017.2, EXIT ACCESS TRAVEL DISTANCE

OCCUPANCY WITHOUT SPRINKLER
M 200 FEET

IBC SECTION 1103.2.9, EQUIPMENT SPACES
SPACES FREQUENTED ONLY BY SERVICE PERSONNEL FOR MAINTENANCE, REPAIR OR OCCASIONAL MONITORING OF EQUIPMENT ARE NOT REQUIRED TO COMPLY WITH THIS CHAPTER

IBC SECTION 1103.2.14, WALK-IN COOLERS & FREEZERS
WALK-IN COOLERS AND FREEZERS INTENDED FOR EMPLOYEE USE ONLY ARE NOT REQUIRED TO COMPLY WITH THIS CHAPTER

IBC SECTION 1104.1, SITE ARRIVAL ROUTE
ACCESSIBLE ROUTES WITHIN THE SITE SHALL BE PROVIDED FROM PUBLIC WALK-IN COOLERS AND FREEZERS INTENDED FOR EMPLOYEE USE ONLY ARE NOT REQUIRED TO COMPLY WITH THIS CHAPTER

EXCEPTION: AN ACCESSIBLE ROUTE IS NOT REQUIRED BETWEEN ACCESSIBLE BUILDINGS, FACILITIES, ELEMENTS AND ACCESSIBLE SPACES THAT HAVE AS THE ONLY MEANS OF ACCESS BETWEEN THEM, A VEHICULAR WAY NOT PROVIDING FOR PEDESTRIAN ACCESS.

CODE ANALYSIS cont.:

IBC SECTION 1104.2, WITHIN A SITE
AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, FACILITIES, ELEMENTS AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.
EXCEPTION: AN ACCESSIBLE ROUTE IS NOT REQUIRED BETWEEN ACCESSIBLE BUILDINGS, FACILITIES, ELEMENTS AND ACCESSIBLE SPACES THAT HAVE AS THE ONLY MEANS OF ACCESS BETWEEN THEM, A VEHICULAR WAY NOT PROVIDING FOR PEDESTRIAN ACCESS.

IBC TABLE 2902.1, MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES

OCCUPANCY	WATER CLOSETS		LAVATORIES	
	MALE	FEMALE	MALE	FEMALE
M	1/500	1/500	1/750	1/750

OCCUPANTS:
M 32 OCCUPANTS = 16 MALE AND 16 FEMALE

TOTAL REQUIRED PLUMBING FIXTURES EACH SEX:
MALE = 1 WATER CLOSET AND 1 LAV
FEMALE = 1 WATER CLOSET AND 1 LAV

PLUMBING FIXTURES PROVIDED:
MALE = 1 WATER CLOSET AND 1 LAV
FEMALE = 1 WATER CLOSET AND 1 LAV

IFC 905.1, ADDRESS IDENTIFICATION
NEW BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. IT SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND, BE ARABIC NUMBERS (NOT SPELLED OUT) AND NOT LESS THAN 4" HIGH WITH A MINIMUM STROKE OF 1/2". WHERE REQUIRED BY THE FIRE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

IFC 906, PORTABLE FIRE EXTINGUISHERS
PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED IN ACCORDANCE WITH IFC 906 AND NFPA 10, WITH A MAXIMUM TRAVEL DISTANCE OF 75 FEET.

IFC 1008.3.3, EMERGENCY POWER FOR ROOMS AND SPACES
IN THE EVENT OF POWER SUPPLY FAILURE, AN EMERGENCY ELECTRICIAL SYSTEM SHALL AUTOMATICALLY ILLUMINATE ELECTRICAL EQUIPMENT ROOMS, FIRE COMMAND CENTERS, FIRE PUMP ROOMS, GENERATOR ROOMS AND PUBLIC RESTROOMS GREATER THAN 300 SQUARE FEET.

IFC 1010.1.9.4, LOCKS AND LATCHES
LOCKS AND LATCHES ARE PERMITTED TO PREVENT OPERATION OF DOORS IN GROUP B AND M OCCUPANCIES. THE MAIN DOOR(S) ARE PERMITTED TO BE EQUIPPED WITH KEY-OPERATED LOCKING DEVICES FROM THE EGRESS SIDE PROVIDED:
* THE LOCKING DEVISE IS READILY DISTINGUISHABLE AS LOCKED
* A READILY VISABLE SIGN IS POSTED ON THE EGRESS SIDE STATING "THIS DOOR TO REMAIN UNLOCKED WHEN SPACE IS OCCUPIED"

SEE IFC SECTION 1010.1.9.4 FOR ADDITIONAL REQUIREMENTS.

IFC 6109.15, LP GAS CYLINDER FOR RESALE
IN ADDITION TO OTHER APPLICABLE REQUIREMENTS, FACILITIES OPERATING LP-GAS CYLINDER EXCHANGE STATIONS THAT ARE OPEN TO THE PUBLIC SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
1. CYLINDERS SHALL BE SECURED IN A LOCKABLE, VENTILATED METAL CABINET OR OTHER APPROVED ENCLOSURE
2. CYLINDERS SHALL BE AVAILABLE ONLY BY AUTHORIZED PERSONNEL OR BY USE OF AN AUTOMATIC EXCHANGE SYSTEM IN ACCORDANCE WITH IFC 6109.15.1.
3. A SIGN SHALL BE POSTED ON THE ENTRY DOOR OF THE BUSINESS STATING "DO NOT BRING LP GAS CYLINDERS INTO THE BUILDING"
4. AN EMERGENCY CONTACT INFORMATION SIGN SHALL BE POSTED WITHIN 10 FEET OF THE CYLINDER STORAGE CABINET. CONTENT, LETTERING, SIZE, COLOR AND LOCATION SHALL BE AS REQUIRED BY THE CODE OFFICIAL.

EXITING NOTES

CONSTRUCTION TYPE: V-B, NON-SPRINKLED
USE GROUP: M (CONVENIENCE STORE)
ACTUAL GROSS AREA: 3,349 S.F.

OCCUPANCY AND EGRESS:

CONVENIENCE STORE

SEE OCCUPANCY LOAD CALCULATION ON THIS SHEET

EXITS REQUIRED: 1
EXITS PROVIDED: 2

OVERALL DIAGONAL DISTANCE = 93'-0"
ONE-HALF DISTANCE = 46'-6"
PROVIDED DISTANCE = 48'-3" (REQUIREMENTS MET)

CBC 1017 - EXIT ACCESS TRAVEL DISTANCE = 200' MAX.
REFER TO PLAN FOR DISTANCES (REQUIREMENTS MET)

CBC 1018.4 - COMMON PATH OF EGRESS TRAVEL (CPET) = 75' MAX.
REFER TO PLAN FOR DISTANCES (REQUIREMENTS MET)

CBC 11B-403.5.1 - ACCESSIBLE ROUTE CLEAR WIDTH
AISLE WIDTH SERVING ELEMENTS ON ONE SIDE = 36" MIN.
AISLE WIDTH SERVING ELEMENTS ON BOTH SIDES = 44" MIN.
REFER TO PLAN FOR CLEAR WIDTHS (REQUIREMENTS MET)

LEGEND

- ROUTE FROM MOST REMOTE POINT WITHIN SPACE TO AN EXIT
- COMMON PATH OF EGRESS TRAVEL (CPET) WITHIN OVERALL TRAVEL DISTANCE FROM REMOTE LOCATION TO EXIT
- MOST REMOTE POINT WITHIN THIS AREA

OCCUPANCY LOAD

(M OCCUPANCY)

SALES - 1,906 S.F. (1906/60) = 32
OFFICE - 69 S.F. (69/100) = 1
RESTROOMS - 172 S.F. (EXEMPT) = 0
STORAGE - 101 S.F. (101/300) = 1
UTILITY - 254 S.F. (254/200) = 2
PREP AREA - 206 S.F. (206/200) = 2
COOLER/FREEZER - 530 S.F. (EXEMPT) = 0
FOOD ORDERING AREA - 10 S.F. (10/5 NET) = 2
INTERIOR WALLS - 111 S.F. (EXEMPT) = 0

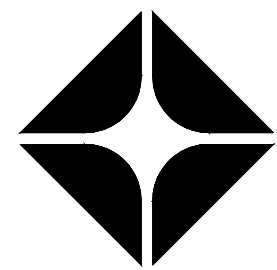
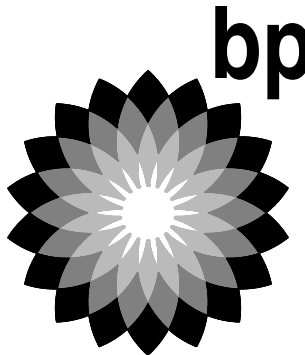
TOTAL (NET): 3,238 S.F.
TOTAL (GROSS): 3,349 S.F.

EXITS REQUIRED: 1
EXITS PROVIDED: 2

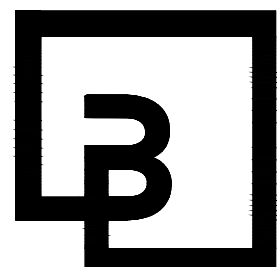
CODE PLAN KEYED NOTES

- EMERGENCY EXIT LIGHTING
- EXTERIOR AWNING OVERHEAD
- 34" A.F.F. MAXIMUM COUNTER HEIGHT, SEE INTERIOR ELEVATIONS
- RAISED BRAILLE EXIT SIGN
- INTERNATIONAL SYMBOL OF ACCESSIBILITY
- EXIT DOOR SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT. NO SPECIAL FEATURES SHOULD ADDED THAT WOULD AFFECT THE EXITING OPERATION
- FIRE EXTINGUISHER

CLIENT:



BP WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO. DATE REVISION DESCRIPTION

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10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON

EXP: 08/05/24

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY: ALLIANCE 280M:

CHECKED BY: BP REP:

DRAWN BY: ALLIANCE PM:

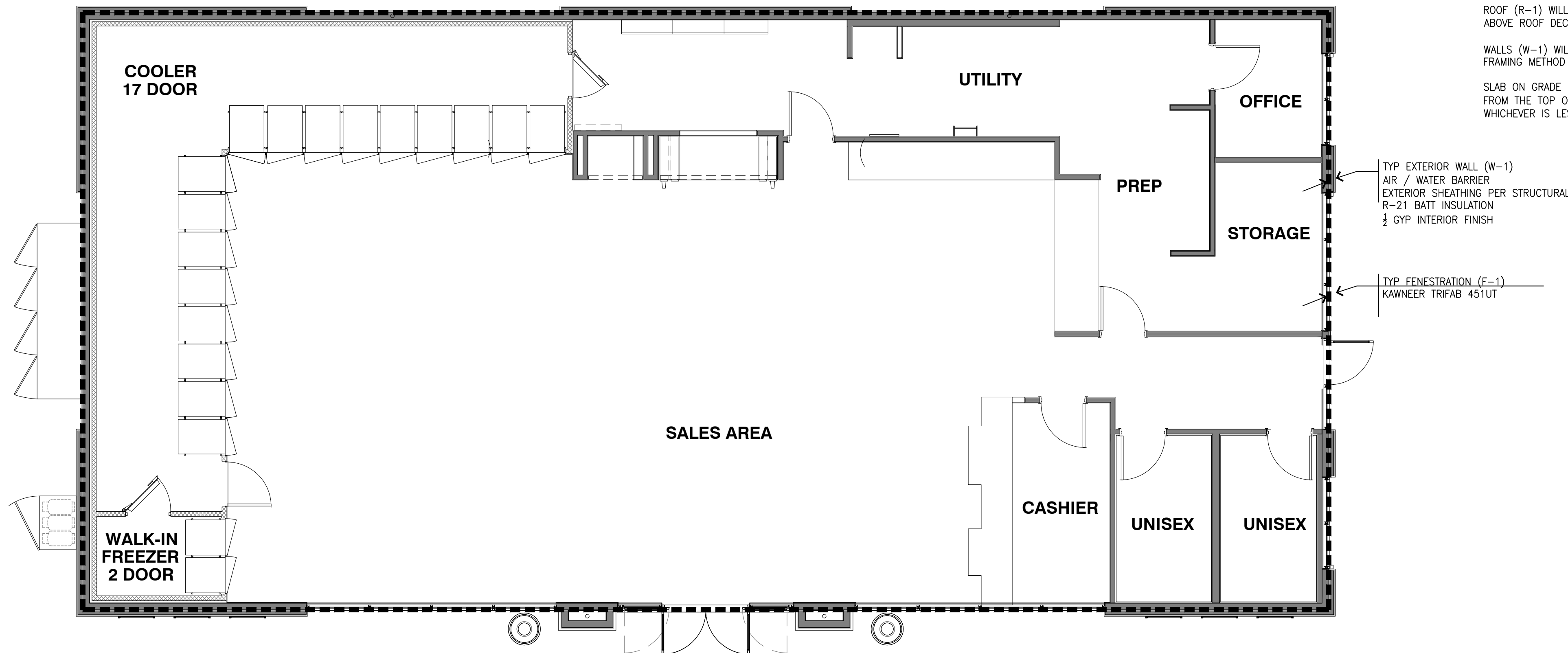
VERSION: PROJECT NO: 21730

DRAWING TITLE:

ACCESSIBILITY
FLOOR PLAN

SHEET NO:

G1.3



GENERAL NOTES (cont.)

PATH:

ENERGY CODE COMPLIANCE PATH IS COMPONENT PERFORMANCE

ENVELOPE SUMMARY:

ROOF (R-1) WILL HAVE CONTINUOUS MINIMUM 8" RIGID INSULATION ABOVE ROOF DECK TO MAINTAIN A CONTINUOUS R-VALUE OF 38

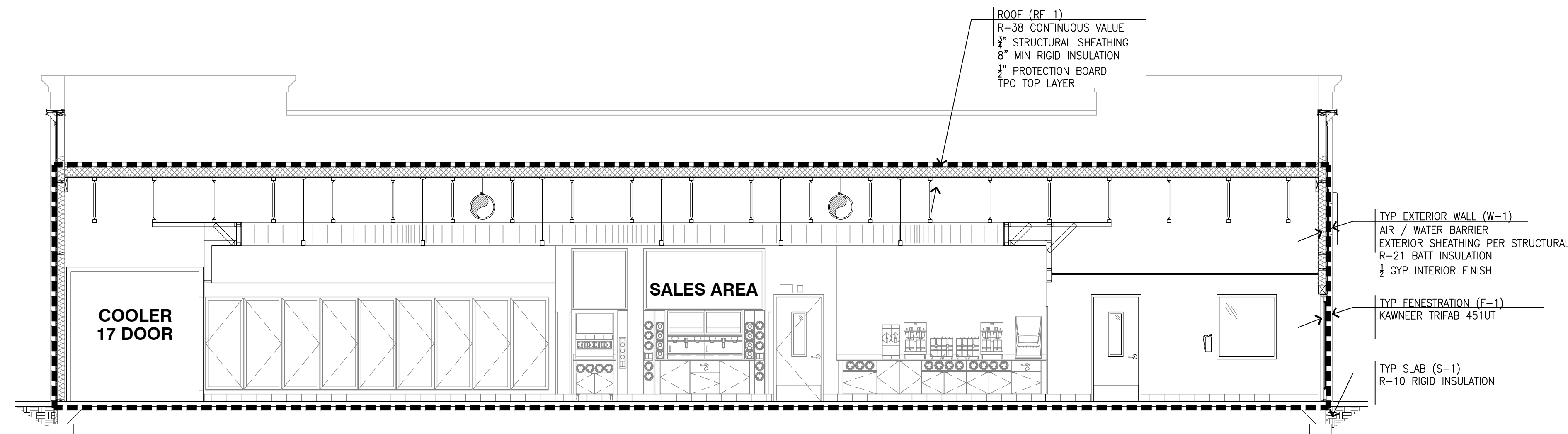
WALLS (W-1) WILL HAVE R-21 ASSEMBLY WITH 5 1/2" BATT INSULATION. FRAMING METHOD IS STANDARD FRAMING

SLAB ON GRADE (S-1) WILL HAVE R-10 VERTICAL RIGID INSULATION FROM THE TOP OF SLAB TO TOP OF FOOTING, OR 24" DOWN, WHICHEVER IS LESS

TYP. EXTERIOR WALL (W-1)
AIR / WATER BARRIER
EXTERIOR SHEATHING PER STRUCTURAL
R-21 BATT INSULATION
1/2 GYP INTERIOR FINISH

TYP. FENESTRATION (F-1)
KAWNEER TRIFAB 451UT

01
—
THERMAL ENVELOPE PLAN
SCALE: 3/16"=1'-0"



02
G2.1
THERMAL ENVELOPE SECTION
SCALE: 3/16"=1'-0"

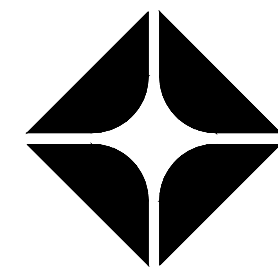
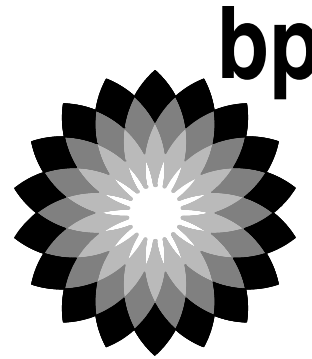
GENERAL NOTES

- INSULATION IDENTIFICATION MARK SHALL BE APPLIED TO ALL INSULATION AND READILY OBSERVABLE. SEE WALL TYPE SCHEDULE FOR EXTERIOR WALL INSULATION.
- ALL EXTERIOR FENESTRATION PRODUCTS ARE TO BE LABELED WITH NFRC U-FACTOR, SHGC, VT AND LEAKAGE RATING.
- WHERE TWO OR MORE LAYERS OF RIGID INSULATION WILL BE USED, EDGE JOINTS BETWEEN LAYERS MUST BE STAGGERED.
- ALL WOOD FRAMING AT THERMAL ENVELOPE SHALL BE STANDARD FRAMING.
- EQUIPMENT CURBS THAT INTERRUPT THE ABOVE ROOF INSULATION SHALL BE INSULATED TO A MINIMUM OF R-13 IN ALL LOCATIONS WHERE THERE ARE NOT ROOF OPENINGS FOR DUCTWORK. THE SPACE BETWEEN THE ROOF OPENING AND THE DUCTWORK SHALL BE SEALED TO MAINTAIN THE BUILDING AIR BARRIER.
- SEE A3.# SECTIONS AND A4.# DETAILS FOR LOCATIONS AND THICKNESS OF INSULATION. ALL INSULATION SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. ROOF INSULATION, WHEN TAPERED WILL MAINTAIN 8" MINIMUM THICKNESS.
- ALL VERTICAL WINDOWS WITHIN THE THERMAL ENVELOPE SHALL HAVE AN NFRC U-FACTOR OF 0.38 MINIMUM AND A SHGC OF 0.38 MINIMUM.
- WINDOWS TO THE SOUTH HAVE PERMANENT SHADING DEVICES WITH A PF OF 0.46.
- ALL GLAZED STOREFRONT DOORS WITHIN THE THERMAL ENVELOPE SHALL HAVE AN NFRC U-FACTOR OF 0.60 MINIMUM AND A SHGC OF 0.38 MINIMUM.
- ALL RELIEF, OUTSIDE AIR INTAKE AND EXHAUST OPENINGS SHALL BE PROVIDED WITH DAMPERS IN ACCORDANCE WITH MECHANICAL SECTION C403.7.8.
- RECESSED LIGHTING FIXTURES SHALL COMPLY WITH C402.5.8. WHERE OBJECTS PENETRATE THE AIR BARRIER, MAINTAIN THE INTEGRITY OF THE AIR BARRIER.
- RECESSED LIGHTING INSTALLED IN THE BUILDING ENVELOPE SHALL BE IC RATED, HAVE AN AIR LEAKAGE RATE OF NOT MORE THAN 2.0 CFM AND CAULKED OR GASKETED.
- A CONTINUOUS AIR BARRIER SHALL BE PROVIDED THROUGHOUT THE BUILDING THERMAL ENVELOPE PER WSEC C402.5.1, AIR BARRIERS.
- PER WSEC 402.5.1.2, BUILDING TEST, THE COMPLETED BUILDING SHALL BE TESTED IN ACCORDANCE WITH ASTM E779, ASTM E1827 OR AN EQUIVALENT METHOD APPROVED BY THE CODE OFFICIAL. TARGET LEAKAGE RATE IS 0.25 CFM/FT2.
- THE AIR BARRIER SHALL BE CONTINUOUS FOR ALL ASSEMBLIES THAT ARE WITHIN THE THERMAL ENVELOPE OF THE BUILDING AND ACROSS JOINTS AND ASSEMBLIES.
- JOINTS AND SEAMS SHALL BE SEALED.
- PENETRATIONS SHALL BE CAULKED OR GASKETED.
- SUBMIT BUILDING ENCLOSURE AIR LEAKAGE TEST REPORTS TO THE LOCAL JURISDICTION AND OWNER;
 - IF THE INITIAL TEST RESULTS EXCEED 0.25 CFM/FT2 INDICATE THAT INSPECTION AND ALL PRACTICAL CORRECTIVE ACTIONS BE COMPLETED AND DOCUMENTED IN THE AIR LEAKAGE REPORT.
 - IF INITIAL TEST RESULT EXCEEDS 0.40 CFM/FT2, INDICATE THAT CORRECTIVE ACTIONS SHALL ALSO INCLUDE TRE-TESTING.
 - INDICATE THAT CORRECTIVE MEASURES AND RETESTING MUST BE REPORTED UNTIL THE TEST RESULT IS 0.40 CFM/FT2 OR LESS
 - INCLUDE AIR BARRIER TEST REPORT IN PROJECT CLOSE OUT DOCUMENTATION PROVIDED TO BUILDING OWNER.
- PROJECT CLOSEOUT DOCUMENTATION IS REQUIRED INCLUDING APPLICABLE CALCULATIONS, WSEC ENVELOPE COMPLIANCE REPORTS, AND FENESTRATION NFRC RATING CERTIFICATES.
- ENERGY EFFICIENCY PACKAGE CREDITS PER WSEC ARE TO BE ACHIEVED PER MECHANICAL AND ELECTRICAL.
- PERIMETER FOUNDATION STEM WALLS TO HAVE R-10 RIGID INSULATION/FROM T.O. SLAB DOWN 24" OR TO T.O. FOOTING, WHICHEVER IS LESS

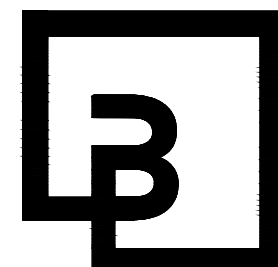
LEGEND

----- AIR BARRIER TO MEET WSEC C402.5.1 AT THERMAL ENVELOPE

CLIENT:



BP WEST COAST PRODUCTS, LLC

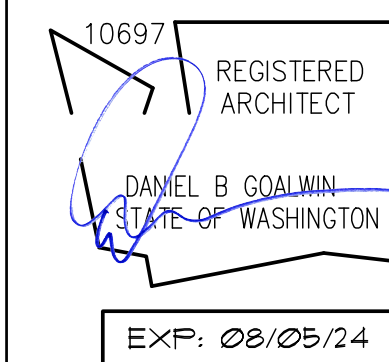


**Barghausen
Consulting Engineers, Inc.**

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

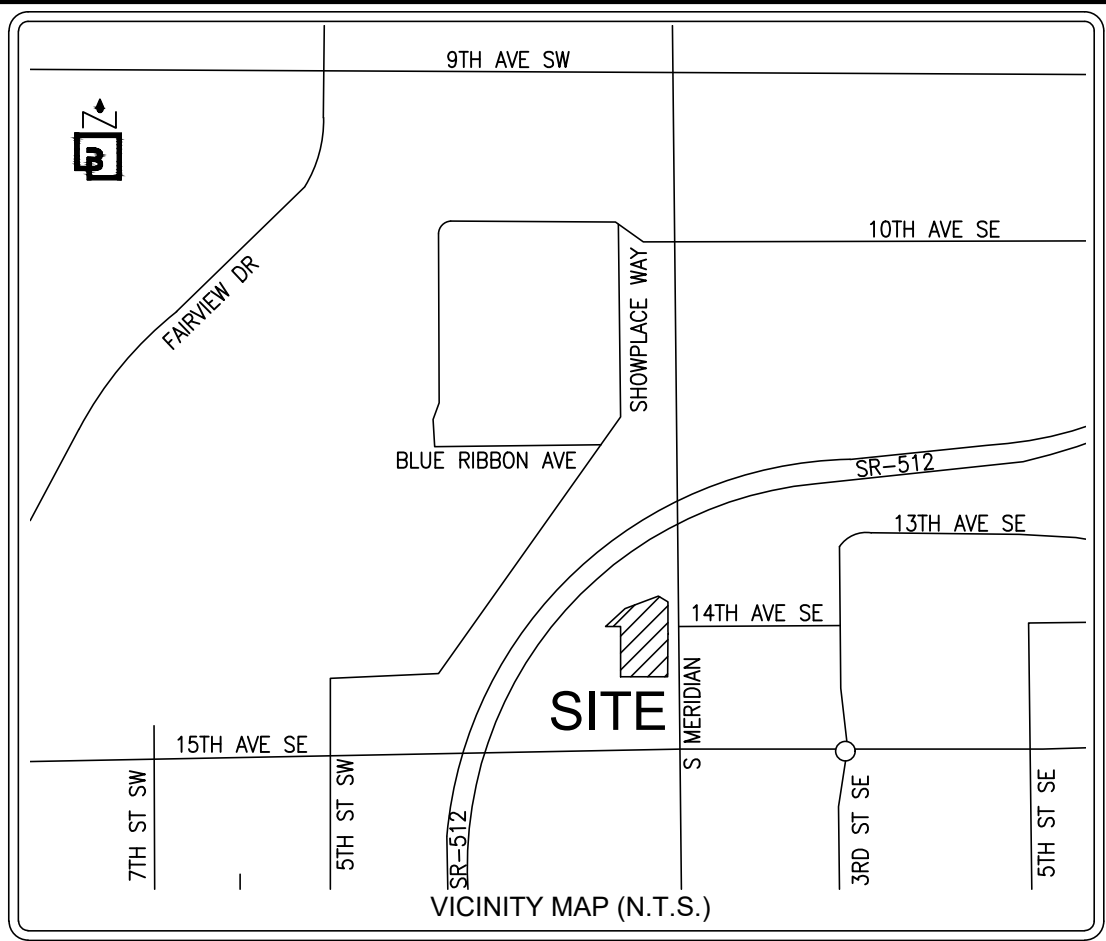
DESIGNED BY:	ALLIANCE ZADON:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

DRAWING TITLE:

**C-STORE ENERGY
CODE PLAN**

SHEET NO:

G1.6



SURVEY INFORMATION:

HORIZONTAL DATUM – BASIS OF BEARINGS:
NAD 83/2011 WASHINGTON STATE COORDINATE SYSTEM, SOUTH ZONE, ESTABLISHED BY GPS OBSERVATION UTILIZING THE WASHINGTON STATE REFERENCE NETWORK. THE BASIS OF BEARINGS IS N 00°33'46" E BETWEEN THE FOUND 2" BRASS DISK AT THE INTERSECTION OF S. MERIDIAN ST. & 15TH AVE SW AND THE FOUND 2" IRON PIPE W/TACK IN MONUMENT CASE AT THE INTERSECTION OS S. MERIDIAN ST. & THE ON/OFF RAMP TO SR 512.

VERTICAL DATUM
VERTICAL DATUM FOR THIS SURVEY IS NAVD88 ESTABLISHED FROM WSDOT MONUMENT ID NO. 247. ELEVATION = 80.449' (NAVD88)

LOT AREA
52,078± SF (1.20± AC)

ADDRESS
1402 S. MERIDIAN, PUYALLUP, WA 98371

TAX PARCEL NUMBER
773000-028-1 & 773000-028-8: TITLE PARCEL A
773000-003-1 & 773000-002-1: TITLE PARCEL B

REFERENCE SURVEYS:
1. PIERCE COUNTY SHORT PLAT OF MERIDIAN CENTER – AFN 77-315 (1977)
2. PLAT OF SOURWINE'S ACRE LOTS – VOL 8 PLATS, PAGE 10 (1905)
3. PIERCE COUNTY SHORT PLAT – AFN 8706010381 (1987)
4. WSDOT SR 512 96TH ST TO JCT. SR 167, DATED MAY 23, 1968

DATE OF SURVEY:
THIS SURVEY REPRESENTS VISIBLE PHYSICAL IMPROVEMENT CONDITIONS EXISTING ON MARCH 22, 2022 & JULY 14, 2023. ALL SURVEY CONTROL INDICATED AS "FOUND" WAS RECOVERED FOR THIS PROJECT IN MARCH OF 2022 & JULY OF 2023.

FLOOD INFORMATION:
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INFORMATION: FIRM (FLOOD INSURANCE RATE MAP) MAP NO. 53053C0341E PANEL 341 OF 1375, DATED MARCH 7, 2017. THE SUBJECT PROPERTY IS IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONING INFORMATION:
(A ZONING REPORT WAS NOT FURNISHED FOR THIS SITE)

SURVEYOR'S NOTES:

- ALL DISTANCES SHOWN HEREON ARE GROUND MEASUREMENTS IN U.S. SURVEY FEET.
- THE BOUNDARY CORNERS AND LINES DEPICTED ON THIS MAP REPRESENT DEED LINES ONLY, AND DON'T PURPORT TO SHOW OWNERSHIP LINES THAT MAY OTHERWISE BE DETERMINED BY A COURT OF LAW. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.
- UNDERGROUND UTILITIES AND FEATURES DEPICTED HEREON ARE BASED ON FIELD OBSERVATION, MARKINGS, DEVELOPMENT PLANS, AND/OR AVAILABLE RECORD DOCUMENTS ONLY. THE TRUE LOCATION, NATURE AND/OR EXISTENCE OF BELOW GROUND FEATURES, DETECTED OR UNDETECTED, SHOULD BE VERIFIED.
- THE LEGAL DESCRIPTION AND SPECIAL EXCEPTIONS SHOWN HEREON ARE PER THE ABOVE REFERENCED TITLE REPORT UNLESS OTHERWISE NOTED.
- THIS SURVEY HAS DEPICTED ALL VISIBLE OCCUPATIONAL INDICATORS (IE. FENCE LINES, BUILDINGS, WALLS, ETC. – SEE MAP FOR PARTICULARS) PER W.A.C. 332-130. LINES OF OCCUPATION, AS DEPICTED, MAY INDICATE AREAS OF POTENTIAL CLAIMS OF UNWRITTEN OWNERSHIP. THIS SURVEY HAS ONLY DEPICTED THE RELATIONSHIP BETWEEN LINES OF OCCUPATION AND DEEDED LINES OF RECORD. NO RESOLUTION OF OWNERSHIP BASED ON UNWRITTEN RIGHTS HAS BEEN MADE BY THIS SURVEY OR BY ANY PERSONNEL OF BARGHAUSEN CONSULTING ENGINEERS, INC.
- THIS IS A FIELD TRAVERSE SURVEY. TOPCON GT AND TOPCON HYPER HR GPS AND DELL TABLET DATA COLLECTOR WERE USED TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN W.A.C. 332-130-090. ALL INSTRUMENTS AND EQUIPMENT HAVE BEEN MAINTAINED IN ADJUSTMENT ACCORDING TO MANUFACTURERS' SPECIFICATIONS AND USED BY APPROPRIATELY TRAINED PERSONNEL.
- THIS SURVEY MEETS OR EXCEEDS THE "RELATIVE POSITIONAL PRECISION" REQUIREMENTS SET FORTH IN THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS IN SECTION 3(E).
- THE RECORD DESCRIPTION FOR THE SUBJECT PROPERTY MATHEMATICALLY CLOSES.
- ELEMENTS AND FEATURES DEPICTED HEREON SATISFY THE REQUIREMENTS STATED WITHIN W.A.C. 332-130-145 FOR TOPOGRAPHIC MAPS, INCLUDING THE FOLLOWING: THE SOURCE OF THE CONTOURS SHOWN HEREON ARE BASED UPON DIRECT FIELD OBSERVATIONS. THE CONTOUR ACCURACY IS PER NATIONAL MAPPING STANDARDS, ONE HALF OF THE CONTOUR INTERVAL (1'). THE PURPOSE OF THIS SURVEY IS TO MAP THE CURRENT CONDITIONS FOR ENGINEERING DESIGN.
- BARGHAUSEN CONSULTING ENGINEERS, INC. SURVEY CREWS DETECTED NO OBSERVABLE EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS ON THE SUBJECT PROPERTY.
- BARGHAUSEN CONSULTING ENGINEERS, INC. SURVEY CREWS DETECTED NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
- THERE IS NO VISIBLE EVIDENCE OF ANY CEMETERIES OR BURIAL GROUNDS.
- THERE IS EVIDENCE OF PHYSICAL ACCESS TO PUBLIC RIGHT-OF-WAY.

ALTA/NSPS LAND TITLE SURVEY

TITLE INFORMATION:

TITLE COMMITMENT:
ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM STEWART TITLE GUARANTY COMPANY COMMITMENT NO. 21000200719, DATED JULY 29, 2021 AT 8:00 AM. INCLUDED ARE APPURTENANT EASEMENTS AND ADJOINING DEEDS FOR UNPLATTED LOTS, IF ANY. IN PREPARING THIS MAP, BARGHAUSEN CONSULTING ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS BARGHAUSEN CONSULTING ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY SAID COMMITMENT. BARGHAUSEN CONSULTING ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND THEREFORE BARGHAUSEN CONSULTING ENGINEERS, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.

LEGAL DESCRIPTION
(PER ABOVE REFERENCED TITLE REPORT)
PARCEL A: (773000-028-1 & 773000-028-8)
LOT 1 AND THE NORTH 15 FEET OF THE EAST 178.33 FEET OF "COMMON ACCESS TRACT A", OF PIERCE COUNTY SHORT PLAT RECORDED UNDER RECORDING NO. 77-315, RECORDS OF PIERCE COUNTY WASHINGTON, FORMERLY BEING DESCRIBED AS THE NORTH 161.5 FEET OF THE WEST 178.33 FEET OF THE EAST 188.33 FEET OF LOT 20, SOURWINE'S ACRE LOTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 8 OF PLATS, PAGE 10, RECORDS OF PIERCE COUNTY, WASHINGTON; TOGETHER WITH THAT PORTION OF 14TH AVENUE SW, VACATED BY ORDINANCE NO. 2304 ABUTTING THEREON AND ATTACHED THERETO, RECORDED UNDER RECORDING NO. 9206040385.
PARCEL A1:
RIGHTS TO USE THAT PORTION OF THE WITHIN DESCRIBED PROPERTY LYING WITHIN COMMON ACCESS TRACT "A" OF SIDE SHORT PLAT, FOR INGRESS, EGRESS, AND INSTALLATION AND MAINTENANCE OF UTILITIES, AS SET FORTH AND DELINEATED ON PIERCE COUNTY SHORT PLAT NO. 77-315; EXCEPT ANY PORTION LYING WITHIN PARCEL A ABOVE.
PARCEL A2:
AN EASEMENT FOR INGRESS AND EGRESS AS SET FORTH IN DOCUMENTS ENTITLED "STATUTORY WARRANTY DEED" AS RECORDED UNDER RECORDING NUMBERS 2741876 AND 2792268.
PARCEL B: (773000-003-1 & 773000-002-1)
LOT 2, SOURWINE'S ACRE LOTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 8 OF PLATS, PAGE 10, RECORDS OF PIERCE COUNTY, WASHINGTON; EXCEPT THAT PORTION LYING WITHIN STATE HIGHWAY NO. SR-512, 96TH STREET TO JUNCTION SR-167; TOGETHER WITH THAT PORTION OF 14TH AVENUE SW, VACATED BY ORDINANCE NO. 2304 ABUTTING THEREON AND ATTACHED THERETO, RECORDED UNDER RECORDING NO. 9206040385.
SITUATE IN THE COUNTY OF PIERCE, STATE OF WASHINGTON.

SPECIAL EXCEPTIONS:
(PER ABOVE REFERENCED TITLE REPORT)

ITEMS 1 THROUGH 18 ARE NOT SURVEY RELATED.

19. TEMPORARY RIGHT, PERMIT, LICENSE AND EASEMENT TO USE AND OCCUPY A PORTION OF SAID LOT 20 FOR THE PURPOSE OF CONSTRUCTING HIGHWAY SLOPES AND OPERATING ALL NECESSARY MACHINERY AND EQUIPMENT THEREON AT ANY AND ALL TIMES UNTIL COMPLETION OF CONSTRUCTION FOR STATE ROAD NO. 512 AS APPROPRIATED BY THE STATE OF WASHINGTON IN PIERCE COUNTY SUPERIOR COURT CAUSE NO. 198127. AFTER COMPLETION OF CONSTRUCTION, ALL RIGHTS OF EASEMENT SHALL BE EXTINGUISHED.
AFFECTS: PARCEL A

(BLANKET IN NATURE)(POTENTIALLY EXTINGUISHED)

20. RELINQUISHMENT OF ACCESS TO STATE HIGHWAY AND OF LIGHT, VIEW AND AIR BY DEED TO THE STATE OF WASHINGTON:
RECORDED: NOVEMBER 19, 1966
RECORDING NO.: 2321816
AFFECTS: PARCEL A

(APPLIES TO OFFSITE ADJACENT PROPERTY)

21. RELINQUISHMENT OF ACCESS TO STATE HIGHWAY AND OF LIGHT, VIEW AND AIR BY DEED TO THE STATE OF WASHINGTON:
RECORDED: OCTOBER 20, 1975
RECORDING NO.: 2632004
AFFECTS: PARCEL B

(BLANKET IN NATURE)

22. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY
PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM
AFFECTS: EAST 10 FEET OF PARCEL A AND INCLUDES OTHER PROPERTY
RECORDED: MAY 26, 1976
RECORDING NO.: 2667305
(PLOTTED HEREON)

23. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY
PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM
AFFECTS: PORTION OF PARCEL A AND INCLUDES OTHER PROPERTY
RECORDED: MAY 26, 1976
RECORDING NO.: 2667306
(BLANKET IN NATURE)

24. COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENTS CONTAINED IN SHORT PLAT:
RECORDED: MAY 25, 1977
RECORDING NO.: 77-315
(PLOTTED HEREON)(COMMON ACCESS TRACT "A")

25. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
PURPOSE: INGRESS, EGRESS AND UTILITIES
AFFECTS: PORTION OF TRACT A LYING WITHIN PARCEL A
RECORDED: JANUARY 16, 1958
RECORDING NO.: 2792268
(PLOTTED HEREON)

26. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
PURPOSE: INGRESS AND EGRESS
AFFECTS: TRACT A OF SHORT PLAT 77-315
RECORDED: JUNE 8, 1977
RECORDING NO.: 2741876
(PLOTTED HEREON)

27. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: CONSTRUCTING, INSTALLING, REPAIRING AND MAINTAINING STREET IMPROVEMENTS ACCORDING TO THE PLAN ENTITLED "SOUTH MERIDIAN STREET IMPROVEMENTS"
RECORDED: JUNE 10, 1987
RECORDING NO.: 8706100397
(PLOTTED HEREON)

28. MUTUAL MAINTENANCE AGREEMENT AND THE TERMS AND CONDITIONS THEREOF:
RECORDED: MAY 17, 1991
RECORDING NO.: 9105170239
AFFECTS: PARCEL A
(NOT SURVEY RELATED)

29. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: WASHINGTON NATURAL GAS
PURPOSE: GAS PIPELINE OR PIPELINES
AFFECTS: NORTHERLY PORTION OF PARCEL A
RECORDED: MARCH 30, 1992
RECORDING NO.: 9203300111
(PLOTTED HEREON)

30. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND APPURTENANCES
AFFECTS: SOUTH 30 FEET OF PARCEL B
RECORDED: JUNE 4, 1992
RECORDING NO.: 9206040382
(PLOTTED HEREON)

31. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND APPURTENANCES
AFFECTS: NORTH 30 FEET OF PARCEL A
RECORDED: JUNE 4, 1992
RECORDING NO.: 9206040383
(PLOTTED HEREON)(OFFSITE ADJACENT EASEMENT)

32. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND APPURTENANCES
AFFECTS: NORTH 30 FEET OF PARCEL A
RECORDED: JUNE 4, 1992
RECORDING NO.: 9206040384
(PLOTTED HEREON)

33. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY
PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM
AFFECTS: PORTION OF PARCEL B
RECORDED: JULY 28, 1992
RECORDING NO.: 9207280563
(PLOTTED HEREON)(OFFSITE ADJACENT EASEMENT)

34. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY
PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM
AFFECTS: PORTION OF PARCEL A
RECORDED: JULY 28, 1992
RECORDING NO.: 9207280564
(PLOTTED HEREON)

SURVEYOR'S CERTIFICATION:

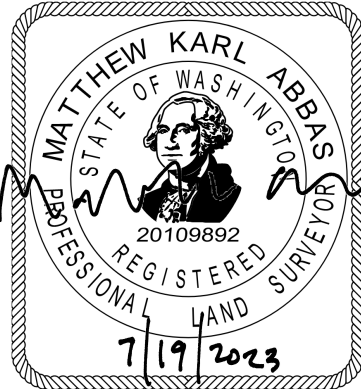
TO: BP PRODUCTS NORTH AMERICA INC., A MARYLAND CORPORATION AND STEWART TITLE GUARANTY COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS AND INCLUDES ITEMS 2, 3, 4, 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16, 17, 18, AND 19 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MARCH 22, 2022.

DATE OF PLAT OR MAP: JULY 19, 2023.

Matthew K. Abbas
Matthew K. Abbas, PLS
WASHINGTON REGISTRATION NO. 20109892
MABBAS@BARGHAUSEN.COM

7/19/2023
DATE



Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number
21730

Sheet
1 of 2

For: BP FUELS NA

Title:

ALTA/NSPS LAND TITLE SURVEY
PTN OF THE SE1/4, OF THE NE1/4 OF SEC. 33,
TWP. 20 N., RGE 4 E., W. M.
CITY OF PUYALLUP, PIERCE COUNTY,
WASHINGTON STATE

1 7/18/23 KJR MKA MKA MKA

Added TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO 15TH AVE SE

Revision

No. Date By Ckd. Appr.

Scale:

Horizontal

N/A

Vertical

Designed

Drawn

Checked

Approved

Date

7/19/23

LEGEND

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- Survey monument (as noted)
- Section corner (as noted)
- Found rebar/cap (as noted)
- Set 2"x2" hub/tack line stake
- Mag/washer or lead/tack (as noted)
- Luminaire (lum.)
- Yard light
- Traffic signal lights
- Power meter
- Power pole
- Junction box (as noted)
- Catch basin (cb)
- Storm manhole (sdmh)
- Sanitary sewer manhole (ssmh)
- Cleanout (as noted)
- Gas meter
- Gas valve
- Water valve (wv)
- Faucet
- Fire hydrant (fh) / connection(fdc)
- Water meter
- Sign
- Irrigation sprinkler
- Directional arrow
- Ada symbol
- Chain link fence
- Wood fence
- Hogwire fence
- Guard rail/cable fence
- Water line
- Gas line
- Telephone line (oh) or (ug)
- Power line (oh) or (ug)
- Storm line
- Sewer line
- Deciduous tree
- Coniferous tree
- Concrete
- Gravel/sand (as noted)
- Asphalt
- Building line

(R#)

Reference surveys

(OH)

Overhead

(UG)

Underground

(TYP)

Typical

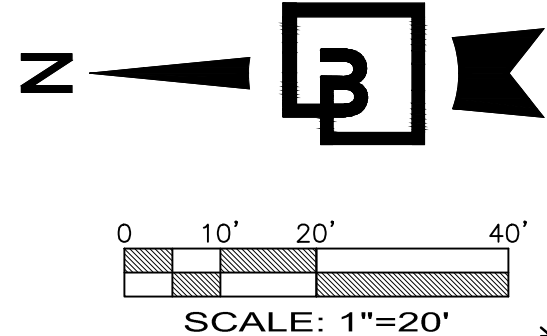
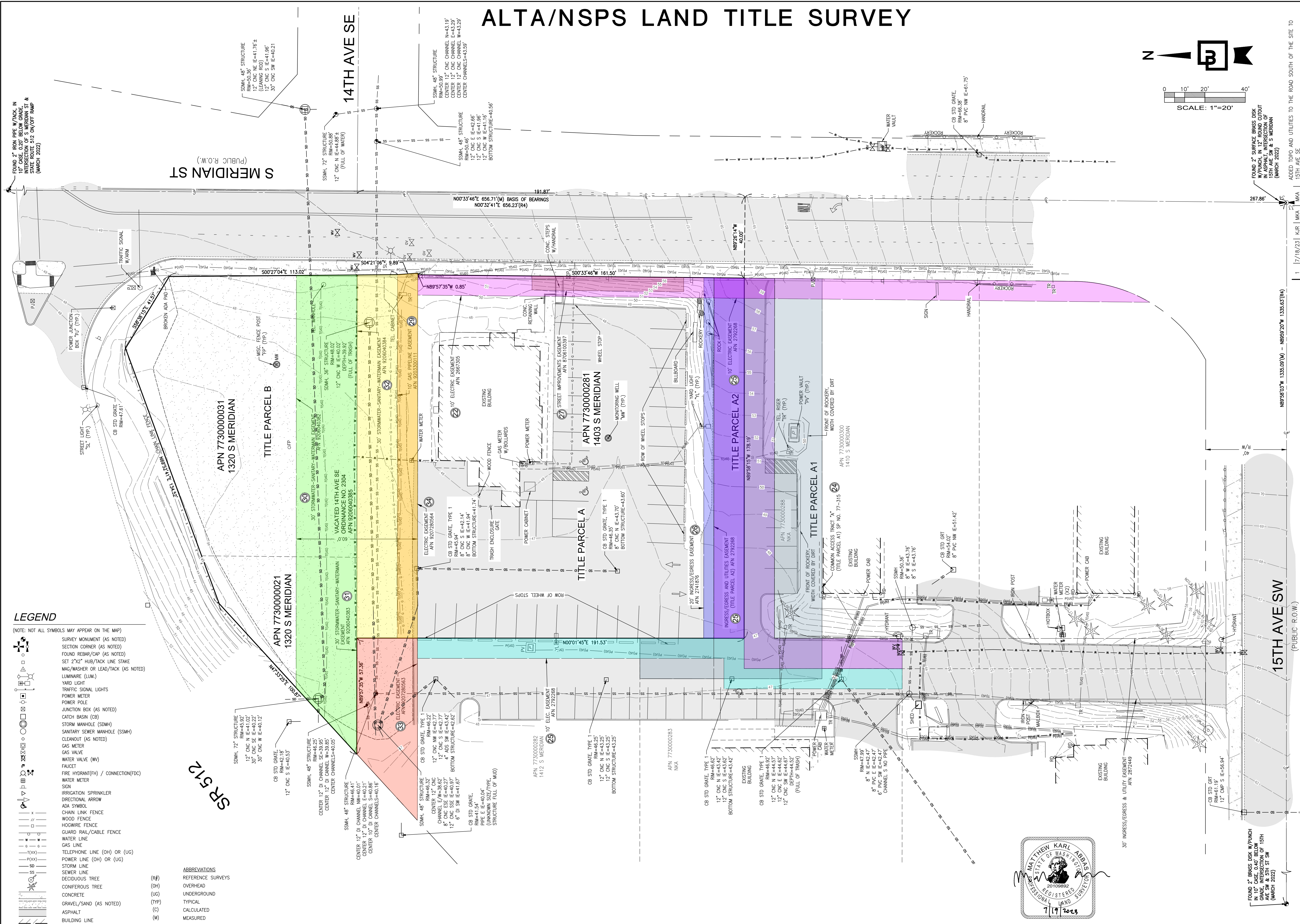
(C)

Calculated

(M)

Measured

- ABBREVIATIONS
- REFERENCE SURVEYS
- OVERHEAD
- UNDERGROUND
- TYPICAL
- CALCULATED
- MEASURED



FOUND 2" SURFACE BRASS DISK W/PUNCH, IN 12" ROUND OUTPUT IN ASPHALT, INTERSECTION OF 15TH AVE SW & S MERIDIAN (MARCH 2022)

ADDED TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO 15TH AVE SE

1 7/18/23 KJR MKA

No. Date By Ckd. Appr.

Revision

Job Number

21730

Sheet

2 of 2

Barghausen
Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Designed
Drawn
Checked
Approved
Date

For:

BP FUELS NA

Title:
ALTA/NSPS LAND TITLE SURVEY

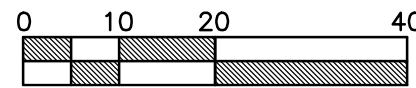
PTN OF THE SE1/4, OF THE NE1/4 OF SEC. 33,
TWP. 20 N., RGE 4 E., W. M.
CITY OF PUYALLUP, PIERCE COUNTY,
WASHINGTON STATE

Scale:
Horizontal
Vertical

1"=20'

7/19/23

FOR
ARCO ampm PUYALLUP
SEC. 33, TWN. 20 N, RGE. 4 E, W.M.
CITY OF PUYALLUP, PIERCE COUNTY



TYPE III LANDSCAPING
MIN. 6' W., 276 LF
1 TREE PER 40 LF=7 TREES REQ.
7 TREES PROVIDED
SHRUBS 7.5' OC
OD'L NATIVE CONIFERS ADDED TO
NSATE FOR IMPRACTICABILITY OF
PARKING LOT TREES (SEE BELOW)

TREES MIN. 20' FROM LOT LIGHTS, TYP.

APN 7730000283
NKA

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLES THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE AT 811 48 HOURS IN ADVANCE AND THEN POTHOLES ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED INFORMATION PROVIDED TO THE CONTRACTOR. IN THE EVENT CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.



PROPERTY LINE

NO TREES IN PLANTER
DUE TO UNDERGROUND
UTILITIES

BUILDINGS	10'
UTILITY AND STREET LIGHT POLES	10'
FIRE HYDRANTS	5'
DRIVEWAY (OUTER PAVING EDGE)	7.5'
STOP LIGHT SIGNAL POLES	20'
UNDERGROUND WATER, SANITARY SEWER OR STORM SEWER LINES	10'
UNDERGROUND GAS, POWER OR OTHER CONDUIT	30'
INTERSECTION (FACE OF CURB LINE CORNER AT INTERSECTION)	3'
STREET SIGNS (EXCL. PARKING SIGNS)	30' LEADING SIDE, 10' TRAILING SIDE

— INFO SIGN

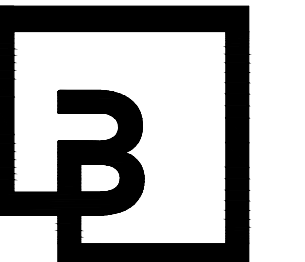

TYPE III LANDSCAPING
MIN. 6' W., 145 LF
1 TREE PER 40 LF=4 TREES REQ.
4 TREES PROVIDED
SHRUBS 7.5' OC

Staff:
Date:

THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE PLANNING MANAGER, DESIGNER, OR PROJECT PLANNER.

NOTE: If street trees are required, Call Planning Division for final inspection: (253) 864-1165 (Option 3). Root Barriers are required around street trees in accordance with city standard detail. Top soil shall be installed in accordance with city standards - field verification required. Failure to install top soil and root barrier in accordance with city standards may result in rejection of installation.

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE WATER PURVEYOR.



18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY:	ALLIANCE Z&DM:
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CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:

VERSION:	PROJECT NO:
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DRAWING TITLE:

LANDSCAPE PLAN

SHEET NO:

1.1

END

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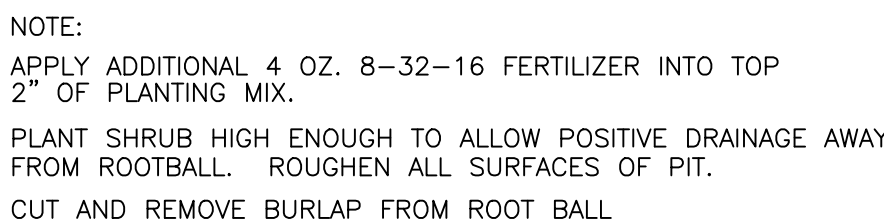
FOR
ARCO ampm PUYALLUP
SEC. 33, TWN. 20 N, RGE. 4 E, W.M.
CITY OF PUYALLUP, PIERCE COUNTY



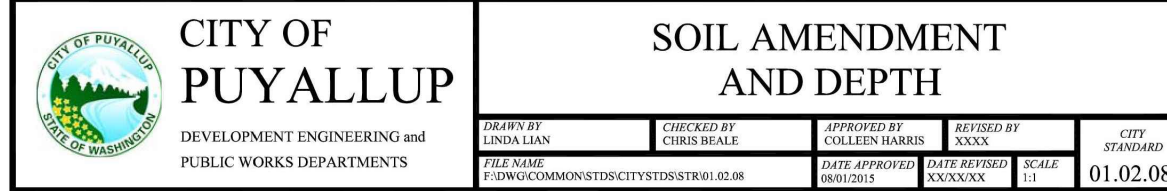
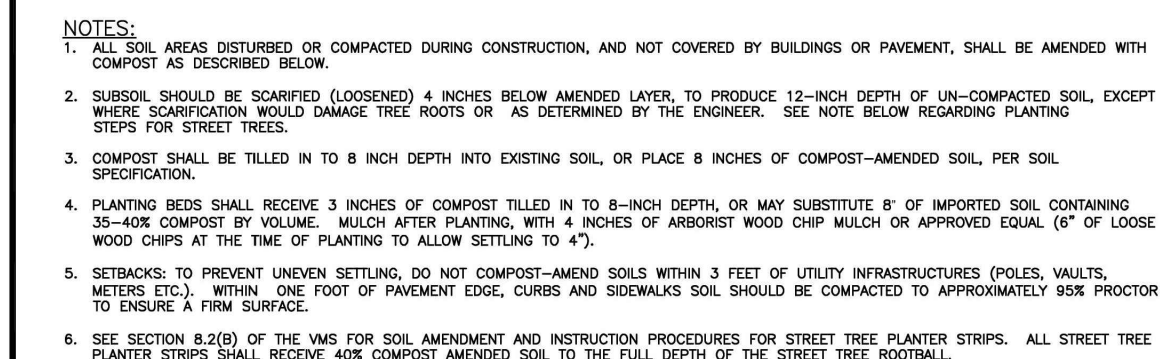
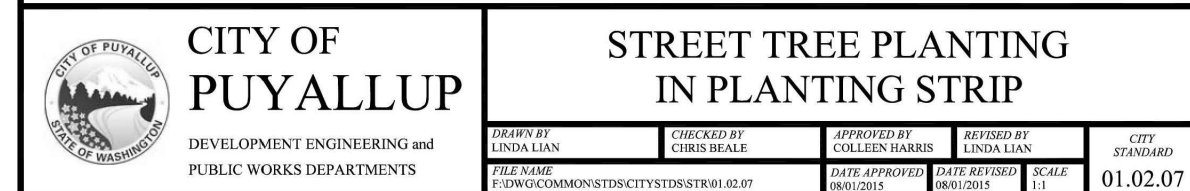
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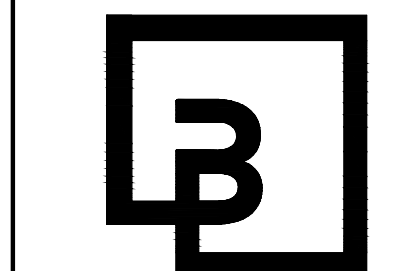
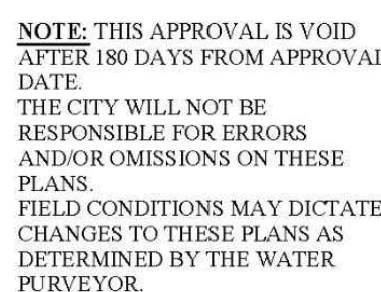
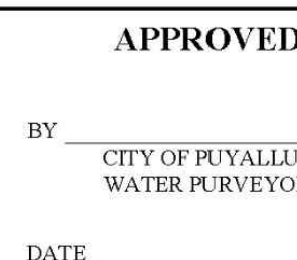
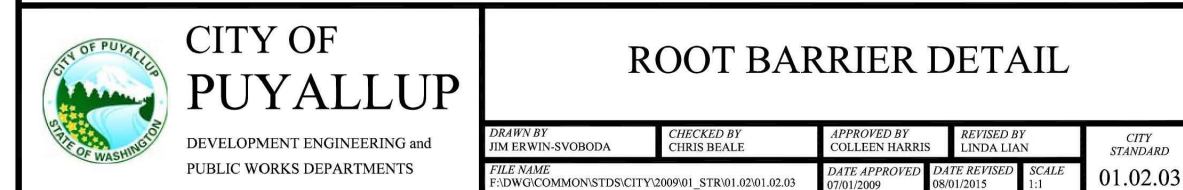
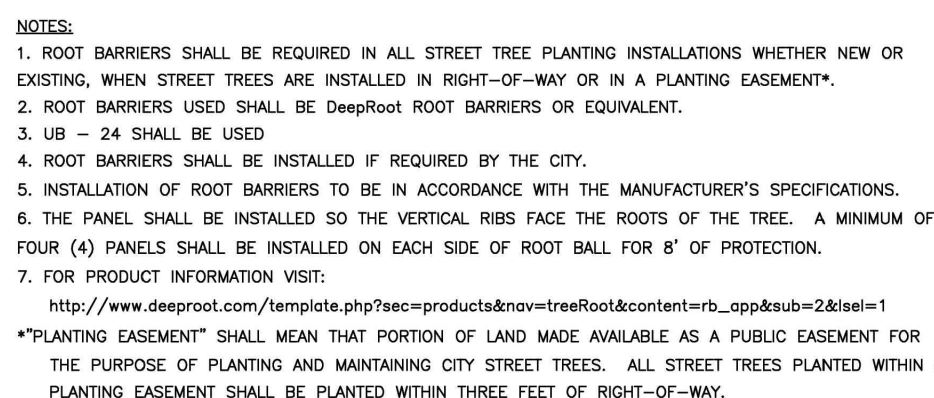
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NOT TO SCALE



NOT TO SCALE



**Barghausen
Consulting Engineers, Inc**

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY:	ALLIANCE Z&DM:
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CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:

VERSION:	-	PROJECT NO:	2173
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DRAWING TITLE:

LANDSCAPE DETAILS

1. *Journal of the American Medical Association*, 2000; 283: 2689-2694.

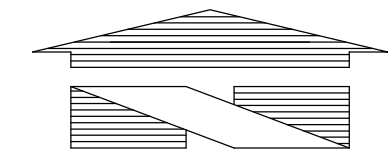
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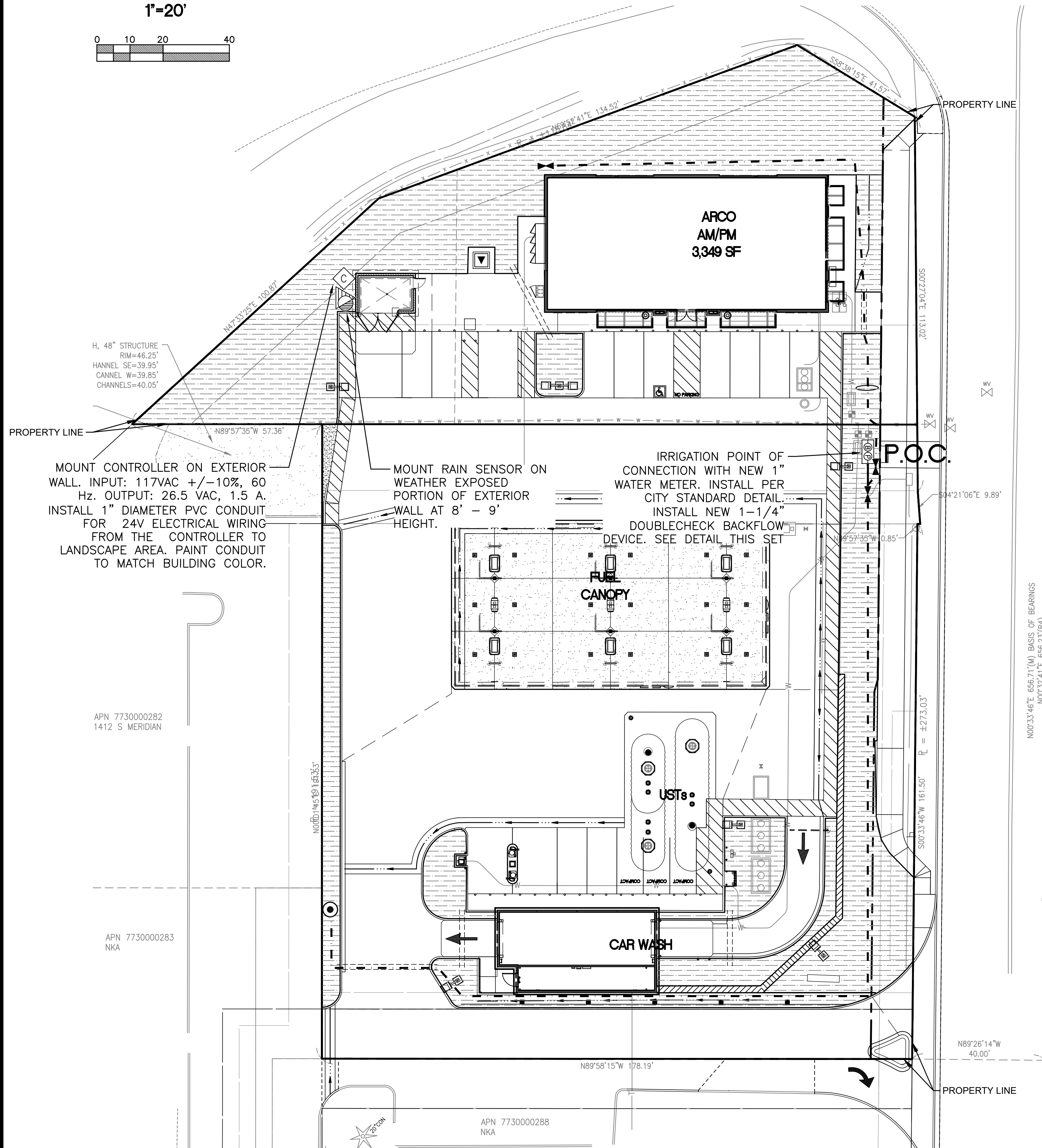
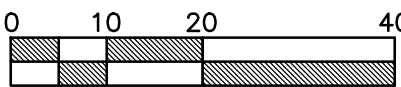
LEO

IRRIGATION PLAN

FOR
ARCO ampm PUYALLUP
SEC. 33, TWN. 20 N, RGE. 4 E, W.M.
CITY OF PUYALLUP, PIERCE COUNTY



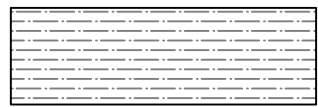
1"=20'



IRRIGATION LEGEND

DESCRIPTION

DRIP IRRIGATION:



HUNTER LANDSCAPE DRIPLINE COMPONENTS

HDL-06-12-250-CV SUB-SURFACE DRIPLINE TUBING 0.6 GPH PRESSURE COMPENSATING EMITTERS WITH CHECK VALVE AT 12" ON-CENTER SPACING - ALL TUBING SHALL BE INSTALLED ON GRADE W/ 9" WIRE STAKES FOUR (4) FEET ON-CENTER; VERIFY THE LAYOUT AND 18" ON-CENTER SPACING IN THE FIELD PRIOR TO STARTING WORK. INSTALL ALL COMPONENTS PER MANUF. SPECIFICATIONS.

USE HUNTER PLD-LOC FITTINGS FOR CONNECTION BETWEEN PVC LATERAL LINES AND INLINE DRIP TUBING

DRIP IRRIGATION: ICZ-101/151-XL REMOTE CONTROL DRIP ZONE KIT WITH FILTER AND PRESSURE REGULATOR MAXIMUM 2 VALVES PER BOX

HUNTER SOLAR SYNC WIRE RAIN SENSOR COMBO

HUNTER PRO-C CONTROLLER 3 TO 15 STATIONS, (HARDWIRE CONNECTION); PROVIDE GROUND AND BATTERIES PER MANUFACTURER'S SPECIFICATIONS

P.O.C.

WILKINS 950 XLT- 1-1/4" DOUBLE CHECK VALVE (STATE APPROVED); TEST AND CERTIFICATION BY LICENSED BACKFLOW TESTER
WILKINS 850 - BALL VALVE, SIZE TO MATCH PIPE
CARSON INDUSTRIES #1730 (TWO AT P.O.C.) GRADE LEVEL VAULT WITH BOLT LOCK LID

PLASTIC BALL VALVE, MATCH LINE SIZE, IN VALVE BOX

HUNTER HQ-33DLRC 3/4" QUICK COUPLING VALVE, IN VALVE BOX, PROVIDE TWO KEYS AND SWIVELS

MAINLINE - SCH 40 PVC (18" COVER); SIZE PER PLAN, 1-1/2" SIZE MINIMUM

LATERAL - SCH 40 PVC (12" COVER); SIZE PER PLAN, 3/4" SIZE MINIMUM

SLEEVE - SCH 40 PVC; 24" MINIMUM COVER AT VEHICLE CROSSINGS AND 18" MINIMUM COVER IN LANDSCAPE AREAS, 6" SIZE WHERE IRRIGATION MAINLINE TRAVELS THROUGH PIPE. 4" SIZE WHERE ONLY LATERALS TRAVEL THROUGH PIPE

IRRIGATION SHOWN DIAGRAMMATICALLY FOR PLAN CLARITY. COMMON TRENCH AND PLACE EQUIPMENT IN LANDSCAPE; MANIFOLD GROUPED VALVES IN ADJACENT SHRUB AREAS WHERE FEASIBLE.

SCH 40 PIPE SIZING CHART

PIPE SIZE	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	
FLOW GPM	1-8	8-13	13.1-23	23.1-32	32.1-53	53.1-74	GPM (MAX.)

LANDSCAPE IRRIGATION NOTES

- GENERAL CONTRACTOR AND LANDSCAPE CONTRACTOR TO COORDINATE:
 - INSTALLATION OF 110V ELECTRICAL SERVICE FROM ELECTRICAL SOURCE TO AUTOMATIC CONTROLLER, INCLUDING WIRE HOOK-UP INTO MOUNTED CONTROLLER. IRRIGATION CONTRACTOR WILL MOUNT CONTROLLER PER DESIGN AND COORDINATE WITH GENERAL CONTRACTOR.
 - INSTALLATION OF IRRIGATION/SERVICE METER AND STUB TO IRRIGATION POINT OF CONNECTION, PER UTILITY PLAN(S). PROVIDE STANDARD THREADED STUB-OUT WITH THREADED CAP ON DISCHARGE SIDE OF METER. STUB-OUT TO BE INSTALLED APPROXIMATELY 18 INCHES BELOW FINISH GRADE.
 - VERIFICATION OF STATIC WATER PRESSURE AT POINT-OF-CONNECTION (P.O.C.) CONTRACTOR SHALL NOTIFY OWNER AND BARGHAUSEN CONSULTING ENGINEERS, INC., OF ANY VARIATION IN STATIC PRESSURE OVER 5 PSI GREATER/LESS THAN DESIGN PRESSURE.
 - INSTALLATION OF SLEEVING.
- PROVIDE ALL LABOR, MATERIALS, TRANSPORTATION, AND SERVICES NECESSARY TO FURNISH AND INSTALL A COMPLETE IRRIGATION SYSTEM AS INDICATED ON THE DRAWINGS AND/OR NOTES. PROVIDE A ONE (1) YEAR WARRANTY/GUARANTEE FROM FINAL ACCEPTANCE AGAINST ALL DEFECTS IN MATERIALS, EQUIPMENT, AND WORKMANSHIP.
- COORDINATE IRRIGATION INSTALLATION WITH GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR, LANDSCAPE CONTRACTOR, OWNER, ARCHITECT, AND LANDSCAPE ARCHITECT.
- LANDSCAPE CONTRACTOR TO TEST AVAILABLE WATER PRESSURE PRIOR TO BEGINNING ANY WORK. PROVIDE LANDSCAPE ARCHITECT WITH WRITTEN PSI RESULTS.
- ALL WORK PER LOCAL CODE. INSTALLATION PER MANUFACTURER'S WRITTEN SPECIFICATIONS.
- CONTRACTOR TO OBTAIN AND PAY FOR ALL PERMITS, FEES, AND REQUIRED CITY INSPECTIONS.
- SUBMITTALS:
 - SUBMIT EACH ITEM LISTED BELOW FOR LANDSCAPE ARCHITECT'S REVIEW AND APPROVAL.
 - PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
 - CONTROL WIRING PATH DIAGRAM.
 - "AS-BUILT" DRAWINGS.
 - OPERATION AND MAINTENANCE MANUALS.
- PROVIDE AND KEEP UP TO DATE A COMPLETE "AS-BUILT" RECORD SET OF PRINTS WHICH ARE TO BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS AND NOTES AND EXACT "AS-BUILT" LOCATIONS, SIZES AND KIND OF EQUIPMENT. THIS SET OF DRAWINGS. ARE TO BE KEPT ON SITE AND ARE TO BE USED ONLY AS THE RECORD SET. ALL WORK IS TO BE NEAT AND LEGIBLE ANNOTATIONS THEREON DAILY AS THE WORK PROCEEDS, SHOWING WORK AS ACTUALLY INSTALLED.
 - PERMANENT POINTS OF REFERENCE, BUILDING CORNERS, WALKS, OR ROAD INTERSECTIONS, ETC., THE LOCATION OF THE FOLLOWING:
 - CONNECTION TO WATER LINES (P.O.C.),
 - CONNECTIONS TO ELECTRICAL POWER,
 - GATE VALVE, QUICK COUPLERS, AND REMOTE CONTROL VALVE,
 - ROUTING OF MAINLINE (DIMENSION MAXIMUM 100' ALONG ROUTING),
 - ROUTING OF CONTROL WIRING,
 - OTHER RELATED EQUIPMENT AS DIRECTED BY THE LANDSCAPE ARCHITECT.
- PREPARE AND PROVIDE PRIOR TO COMPLETION OF CONSTRUCTION, A THREE RING BINDER CONTAINING THE FOLLOWING INFORMATION:
 - INDEX SHEET STATING CONTRACTOR'S ADDRESS, TELEPHONE NUMBER, FAX, E-MAIL AND A LIST OF EQUIPMENT WITH NAME AND ADDRESS OF LOCAL MANUFACTURER'S REPRESENTATIVES,
 - CATALOG AND PARTS SHEETS ON EVERY MATERIAL AND EQUIPMENT INSTALLED UNDER THIS, CONTRACT,
 - GUARANTEE STATEMENT,
 - COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL MAJOR EQUIPMENT.
 - CONSTRUCTION DETAILS FROM THE PROJECT,
 - COMPLETE TROUBLE-SHOOTING GUIDE TO COMMON IRRIGATION PROBLEMS,
 - WINTERIZATION AND SPRING START-UP PROCEDURES,
 - CHART OF APPROXIMATE WATERING TIMES FOR SPRING, SUMMER, AND FALL,
 - A COPY OF THE "AS-BUILT" DRAWINGS AND CONTROLLER CHART.
- ALL VALVES TO BE PLACED IN "CARSON" GRADE LEVEL BOXES WITH BOLT-LOCK LIDS (OR APPROVED EQUIVALENT). SET BOXES 2 INCHES HIGHER THAN FINISH GRADE IN MULCH AREAS AND FLUSH WITH FINISH GRADE IN LAWN AREAS. JUMBO BOX FOR CHECK VALVE, 10" ROUND BOX FOR GATE/QUICK COUPLER/WIRE SPLICES, AND 12" STANDARD FOR CONTROL VALVES. PROVIDE BOX EXTENSIONS AS REQUIRED.
- MAINLINE PIPE TO BE BURIED 18 INCHES, LATERALS 12 INCHES, AND SLEEVES 24" INCHES BELOW FINISH GRADE. NO ROCK OR DEBRIS TO BE BACKFILLED OVER PIPE.
- HEAD AND LINE POSITIONING IS DIAGRAMMATIC ON PLAN. ADJUST IN FIELD AS NECESSARY FOR 100 PERCENT COVERAGE. VALVES TO BE POSITIONED ADJACENT TO PAVEMENT/CURBS, IN SHRUB BEDS WHERE POSSIBLE.
- FAMILIARIZE OWNERS FACILITY OPERATOR WITH IRRIGATION SYSTEM FUNCTION, CONTROLLER PROGRAMMING, SYSTEM OPERATION AND MAINTENANCE REQUIREMENTS.
- SPRINKLERS ON RISERS WILL NOT BE ALLOWED UNLESS NOTED ON PLANS.
- RADIUS REDUCTION TO BE MADE BY USE OF PRESSURE ADJUSTMENT, SCREENS, AND/OR ALTERNATE NOZZLES. IN-NOZZLE ADJUSTMENT IS LIMITED TO 10 PERCENT FOR SPRAY HEADS AND PER MANUFACTURER'S LIMITS FOR OTHER SPRINKLERS. SPRINKLER SPACING NOT EXCEED 60% OF THE DIAMETER OF THE PUBLISHED DATA.
- ALL CONTROL WIRE SPLICES TO BE MADE AT VALVE BOXES WITH WATER TIGHT ELECTRICAL SPLICES, 3M, SCOTT'S LOCK SEAL TACK 3576-78, OR EQUIVALENT.
- EACH VALVE BOX TO CONTAIN A MINIMUM OF TWO (2) SPARE ORANGE CONTROL WIRES FOR JACKETED WIRE. ROUTE SPARE WIRES FROM THE CONTROLLER TO THE LAST VALVE OF EACH MAINLINE BRANCH. COMMON WIRE TO BE WHITE. SINGLE STRAND WIRE TO BE A MINIMUM OF 14 GAUGE.
- ALL ELECTRICAL EQUIPMENT TO BE U.L. TESTED AND APPROVED, AND BEAR THE U.L. LABEL.
- CROSS CONNECTION PROTECTION INSPECTION REQUIRED. THE BACKFLOW DEVICE TO BE TESTED UPON THE ORIGINAL INSTALLATION. THE TESTING TO BE PERFORMED BY A PERSON HOLDING A CURRENT CERTIFICATE AS A BACKFLOW TESTER. THE TEST REPORT TO BE SUBMITTED TO THE LOCAL WATER DISTRICT, OR PURVEYOR, AND OWNER WITH A COPY TO BARGHAUSEN CONSULTING ENGINEERS, INC. CONTRACTOR TO INCLUDE TESTING IN THE SCOPE OF WORK. OWNER IS RESPONSIBLE FOR ANNUAL INSPECTIONS AFTER THE INTIAL INSPECTION.
- CONTRACTOR TO PROVIDE SYSTEM WINTERIZATION/SPRING SERVICE WHEN INSTALLATION HAS BEEN COMPLETED WITHIN 90 DAYS OF NOVEMBER 1 FOR WINTERIZATION, OR MAY 15 FOR SPRING SERVICE. SERVICE TO BE PERFORMED AS NEAR AS PRACTICAL.

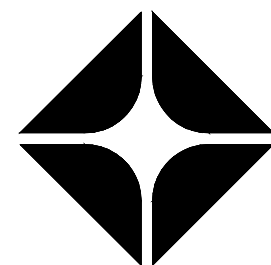
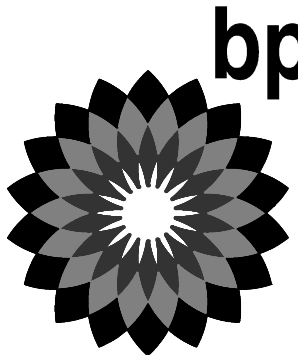
UTILITY CONFLICT NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POT-HOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE AT 811 48 HOURS IN ADVANCE AND THEN POT-HOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

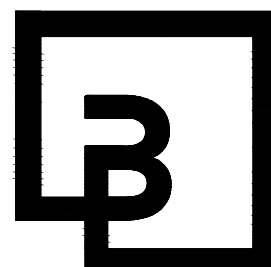


Know what's below.
Call before you dig.
Dial 811

CLIENT:



ARCO
BP WEST COAST PRODUCTS, LLC



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO. DATE REVISION DESCRIPTION

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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: ALLIANCE ZADN:

CHECKED BY: BP REP:

DRAWN BY: ALLIANCE PM:

VERSION: PROJECT NO: 21730

DRAWING TITLE:

IRRIGATION

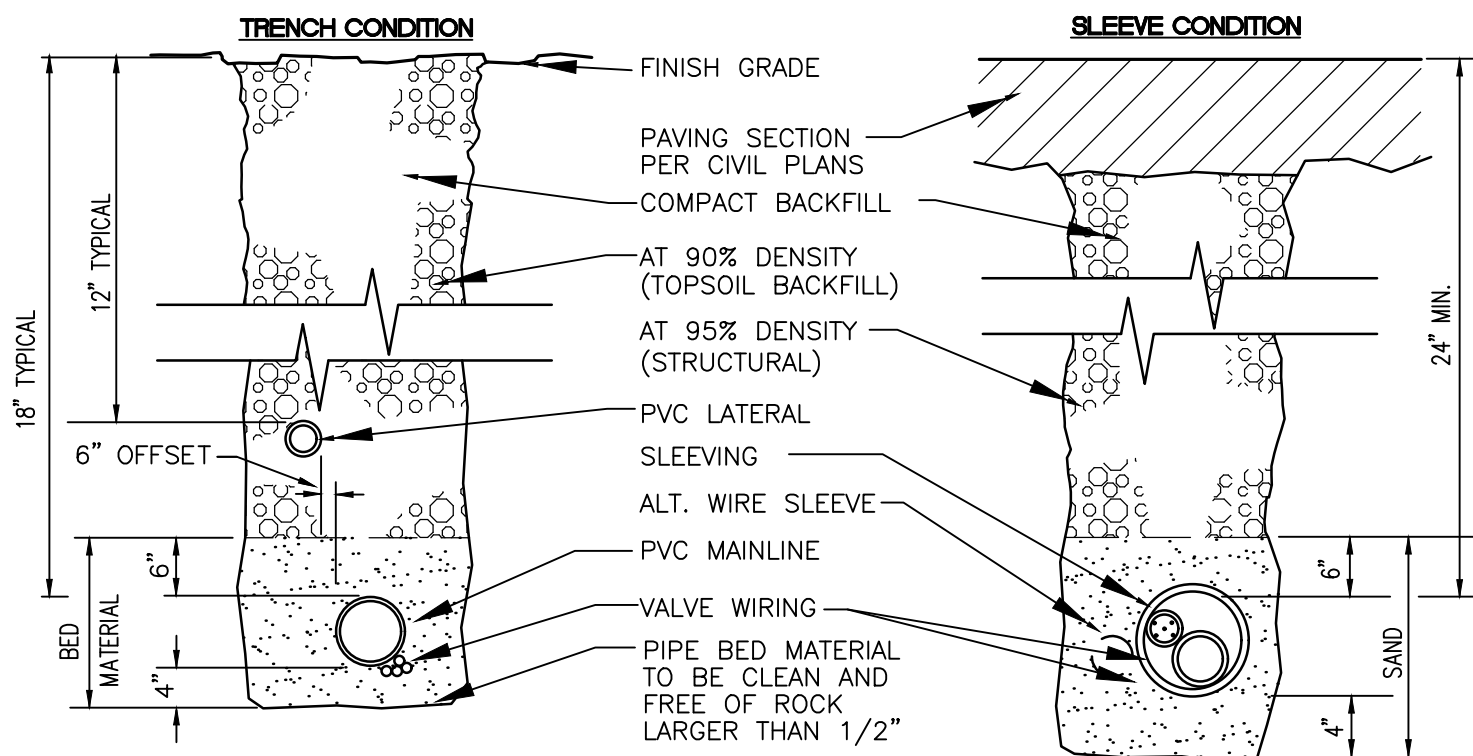
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SHEET NO:

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IRRIGATION DETAILS

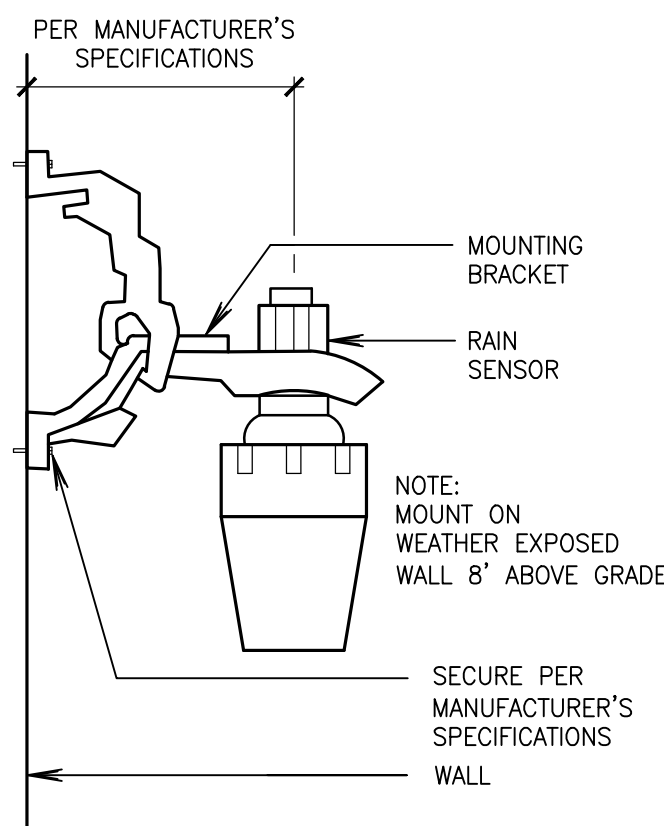
FOR
ARCO ampm PUYALLUP
SEC. 33, TWN. 20 N, RGE. 4 E, W.M.
CITY OF PUYALLUP, PIERCE COUNTY



NOTE:
SLEEVING MATERIAL SHALL BE PVC CLASS 160(SDR-26).
DIMENSIONS ARE MIN. CLEARANCES.
ALL IRRIGATION SLEEVING TRENCH BACKFILL MATERIAL SHALL
BE CLASS "B" OR BETTER (MAX. OF 10% PASSING NO.40 SCREEN) AND BE
COMPACTED TO MIN. 95% OPTIMUM DENSITY PER ASTM D-1557-70
(MODIFIED PROCTOR)

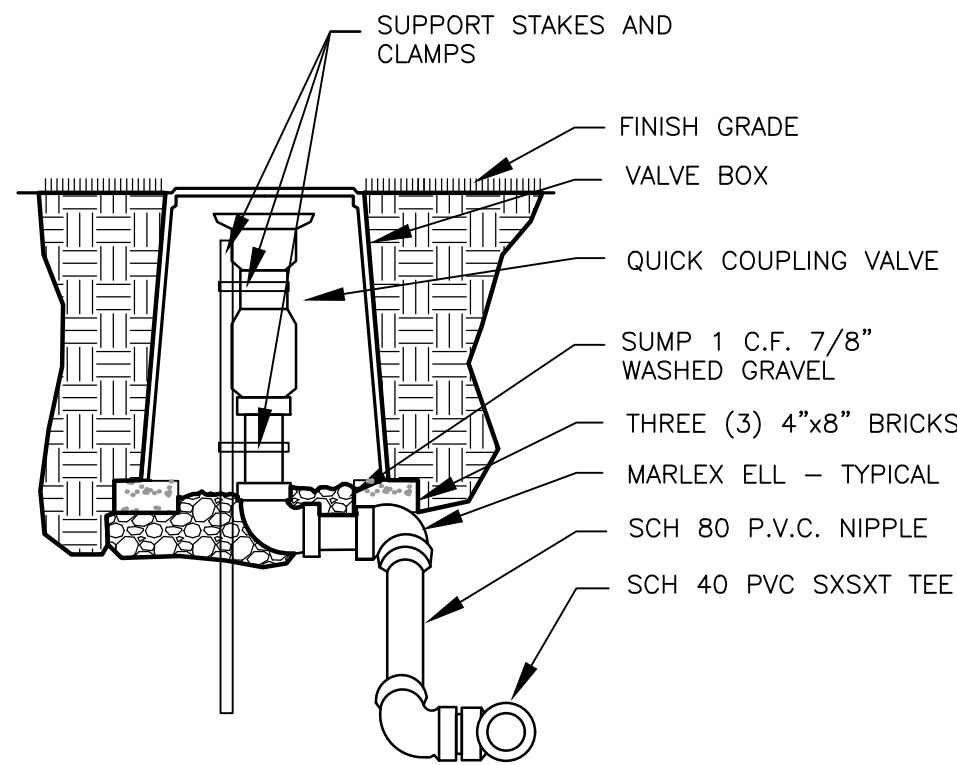
SLEEVE/TRENCHING DETAIL

NOT TO SCALE



RAIN SENSOR DETAIL

NOT TO SCALE



QUICK COUPLING VALVE DETAIL

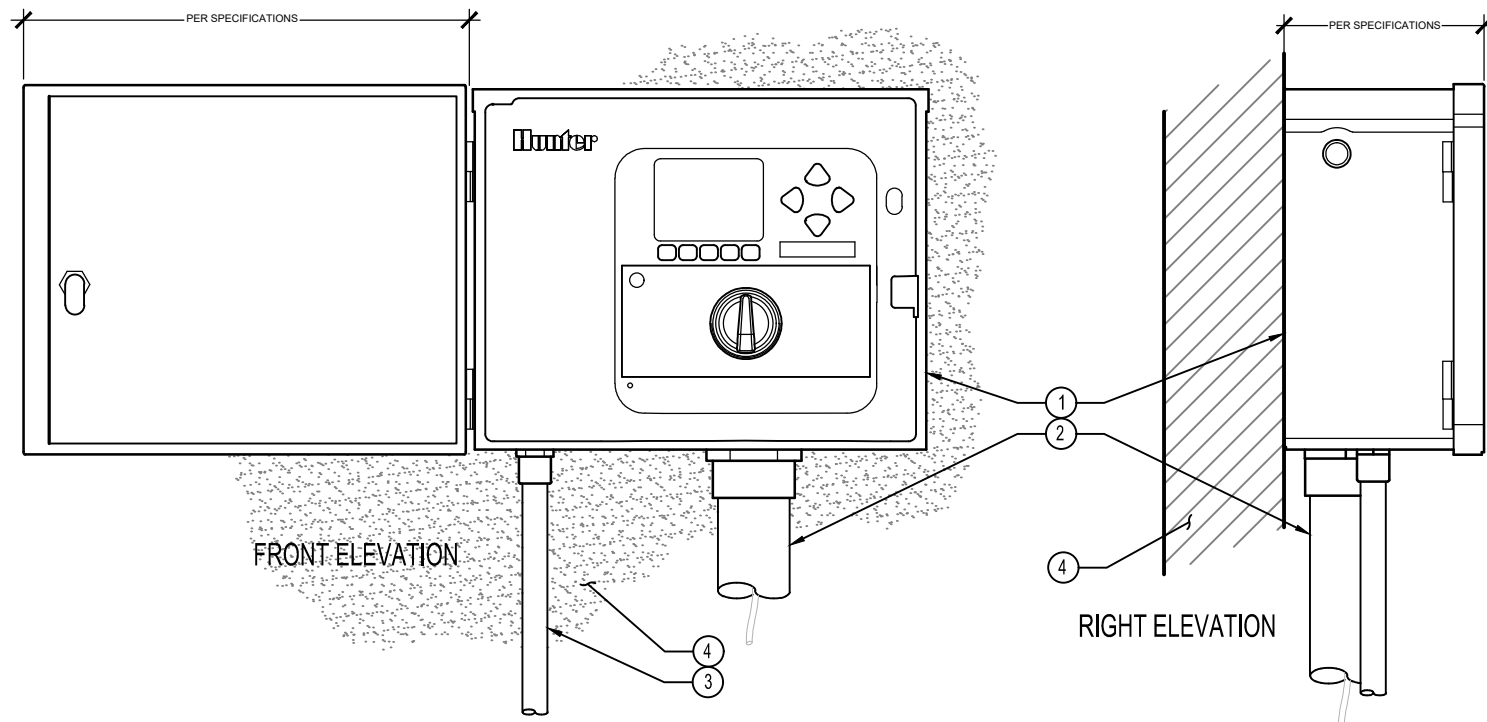
NOT TO SCALE

UTILITY CONFLICT NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POT-HOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE AT 811 48 HOURS IN ADVANCE AND THEN POT-HOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.



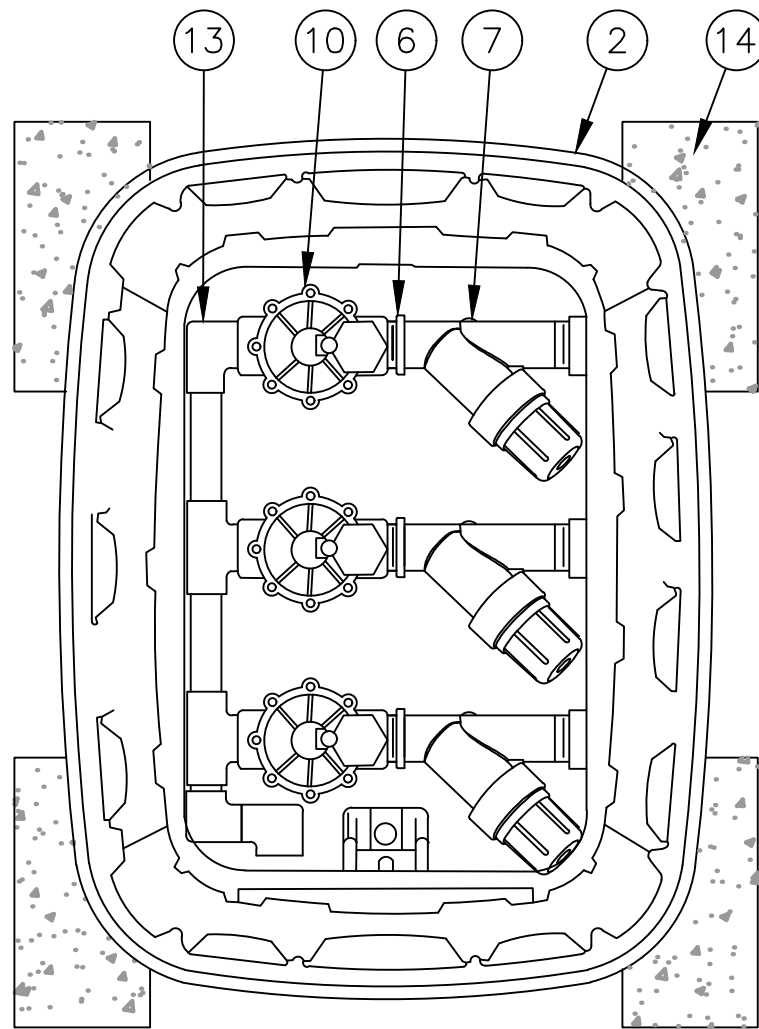
Know what's below.
Call before you dig.
Dial 811



IRRIGATION CONTROLLER, WALL MOUNT

NOT TO SCALE

- 1 FINISH GRADE
- 2 STANDARD VALVE BOX WITH COVER:
RAIN BIRD VB-STD
- 3 WATERPROOF CONNECTION:
RAIN BIRD DB SERIES
- 4 VALVE ID TAG
- 5 30-INCH LINEAR LENGTH OF WIRE, COILED
- 6 1" X 3/4" REDUCING COUPLING
(INCLUDED IN XCZ-LF-100-PRF KIT)
- 7 PRESSURE REGULATING FILTER:
RAIN BIRD PRF-100-RBY (INCLUDED IN
XCZ-LF-100-PRF KIT)
- 8 LATERAL PIPE
- 9 PVC SCH 40 FEMALE ADAPTOR OR REDUCER
- 10 REMOTE CONTROL VALVE:
RAIN BIRD LRV-100 (INCLUDED IN
XCZ-LF-100-PRF KIT)
- 11 PVC SCH 40 TEE OR ELL TO MANIFOLD
- 12 3-INCH MINIMUM DEPTH OF 3/4-INCH
WASHED GRAVEL
- 13 MANIFOLD PIPE AND FITTINGS
- 14 MINIMUM FOUR (4) 4"x8" BRICKS

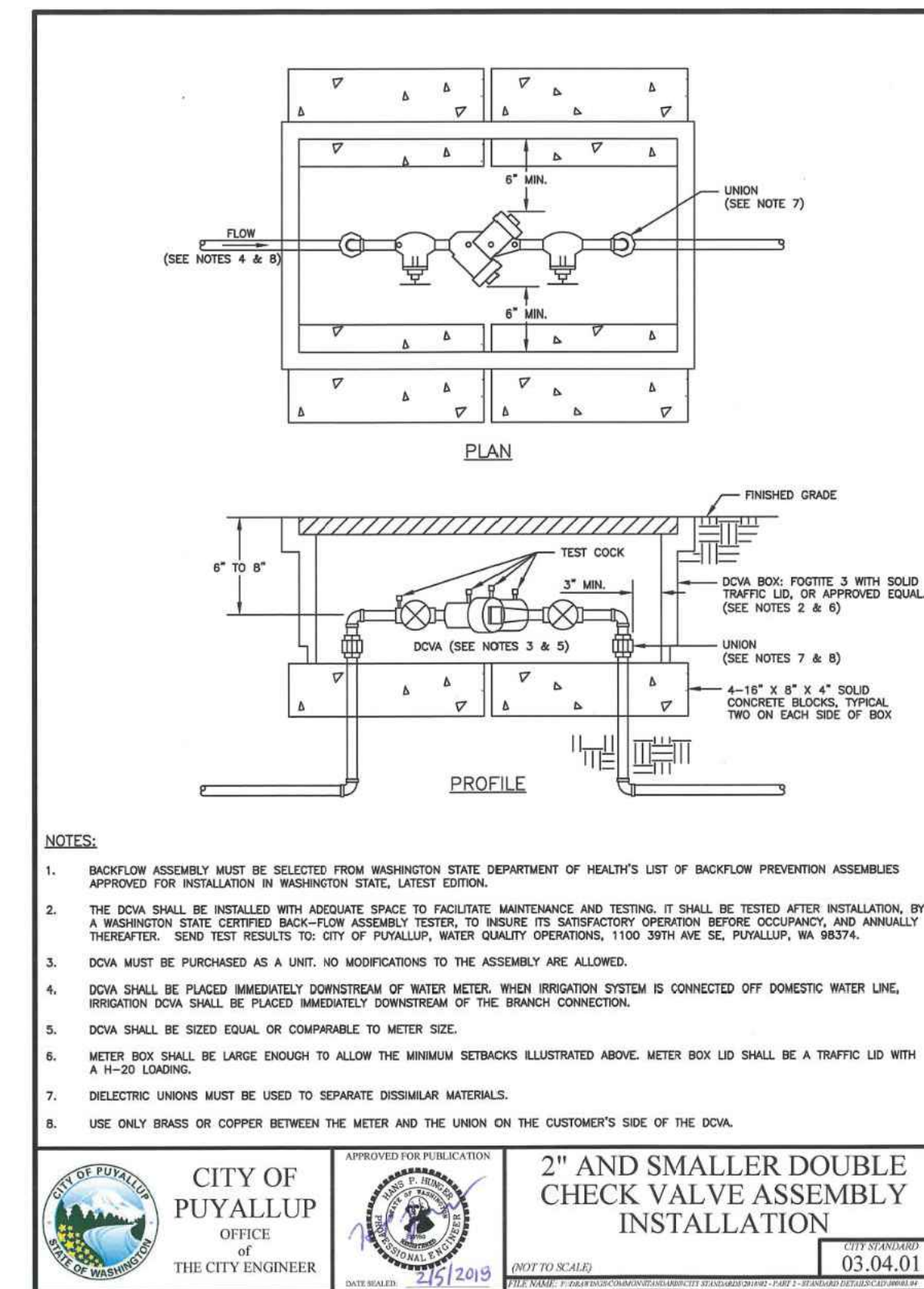
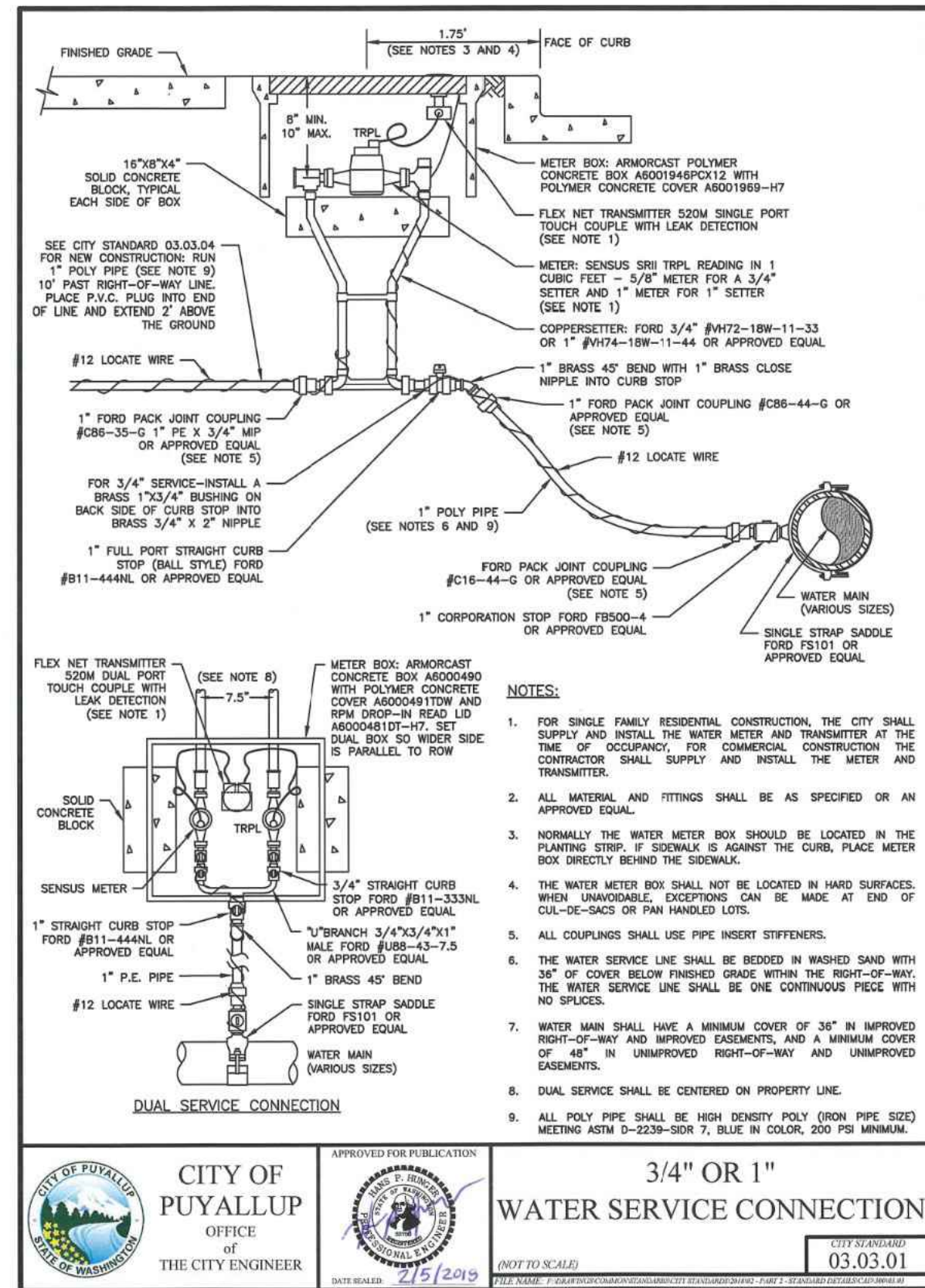


TOP VIEW

SIDE VIEW

DRIP IRRIGATION VALVE

NOT TO SCALE



NOTE:
1. BACKFLOW ASSEMBLY MUST BE SELECTED FROM WASHINGTON STATE DEPARTMENT OF HEALTH'S LIST OF BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE, LATEST EDITION.
2. THE DCA SHALL BE INSTALLED WITH ADEQUATE SPACE TO FACILITATE MAINTENANCE AND TESTING. IT SHALL BE TESTED AFTER INSTALLATION, BY A WASHINGTON STATE CERTIFIED BACK-FLOW ASSEMBLY TESTER, TO INSURE ITS SATISFACTORY OPERATION BEFORE OCCUPANCY, AND ANNUALLY THEREAFTER. SEND TEST RESULTS TO: CITY OF PUYALLUP, WATER QUALITY OPERATIONS, 1100 39TH AVE SE, PUYALLUP, WA 98374.
3. DCA MUST BE PURCHASED AS A UNIT. NO MODIFICATIONS TO THE ASSEMBLY ARE ALLOWED.
4. DCA SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF WATER METER. WHEN IRRIGATION SYSTEM IS CONNECTED OFF DOMESTIC WATER LINE, IRRIGATION DCA SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF THE BRANCH CONNECTION.
5. DCA SHALL BE SIZED EQUAL OR COMPARABLE TO METER SIZE.
6. METER BOX SHALL BE LARGE ENOUGH TO ALLOW THE MINIMUM SETBACKS ILLUSTRATED ABOVE. METER BOX LID SHALL BE A TRAFFIC LID WITH A 10-20 LBS. LIFTING.
7. ELECTRIC UNIONS MUST BE USED TO SEPARATE DISSIMILAR MATERIALS.
8. USE ONLY BRASS OR COPPER BETWEEN THE METER AND THE UNION ON THE CUSTOMER'S SIDE OF THE DCA.

CITY OF PUYALLUP
CITY OF PUYALLUP
OFFICE
of
THE CITY ENGINEER
APPROVED FOR PUBLICATION
DATE: 03/04/01
NOT TO SCALE

CITY OF PUYALLUP
Planning Division
Approved Landscape Plan
(253) 864-4165

Staff:
Date:

THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE PLANNING MANAGER, DESIGNER, OR PROJECT PLANNER.

NOTE: If street trees are required, Call Housing Division for final inspection: (253) 864-4165 (Option 3)
Root Barriers are required around street trees in accordance with city standard detail. Top soil shall be installed in accordance with city standards. Field verification required. Failure to install top soil and root barriers in accordance with city standards may result in rejection of installation.

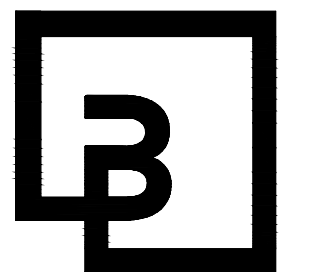
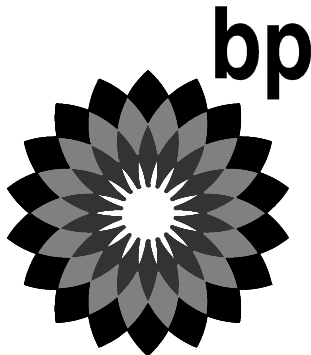
APPROVED

BY
CITY OF PUYALLUP
WATER PURVEYOR

DATE

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE WATER PURVEYOR.

CLIENT:



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: ALLIANCE Z&M
CHECKED BY: BP REP:
DRAWN BY: ALLIANCE PM:
VERSION: PROJECT NO: 21730

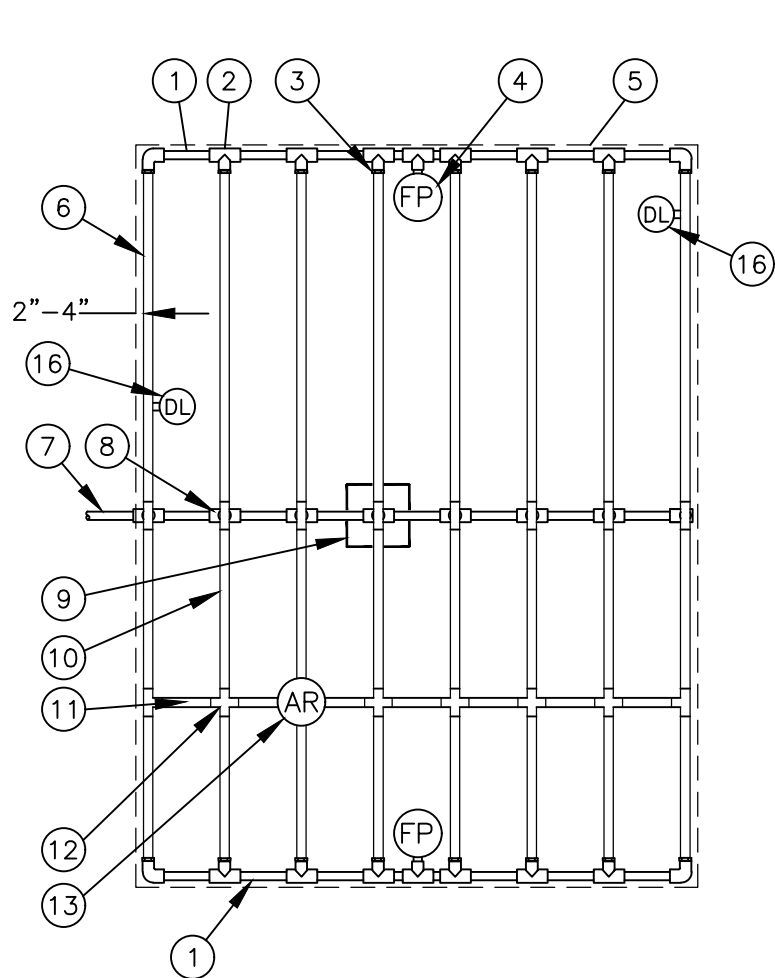
DRAWING TITLE: IRRIGATION DETAILS

SHEET NO:

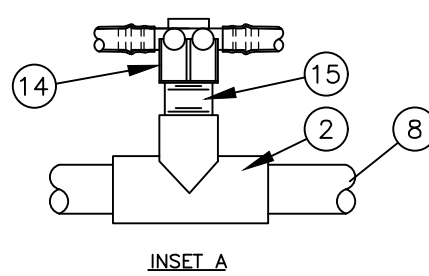
L-5

IRRIGATION DETAILS

FOR
ARCO ampm PUYALLUP
SEC. 33, TWN. 20 N, RGE. 4 E, W.M.
CITY OF PUYALLUP, PIERCE COUNTY

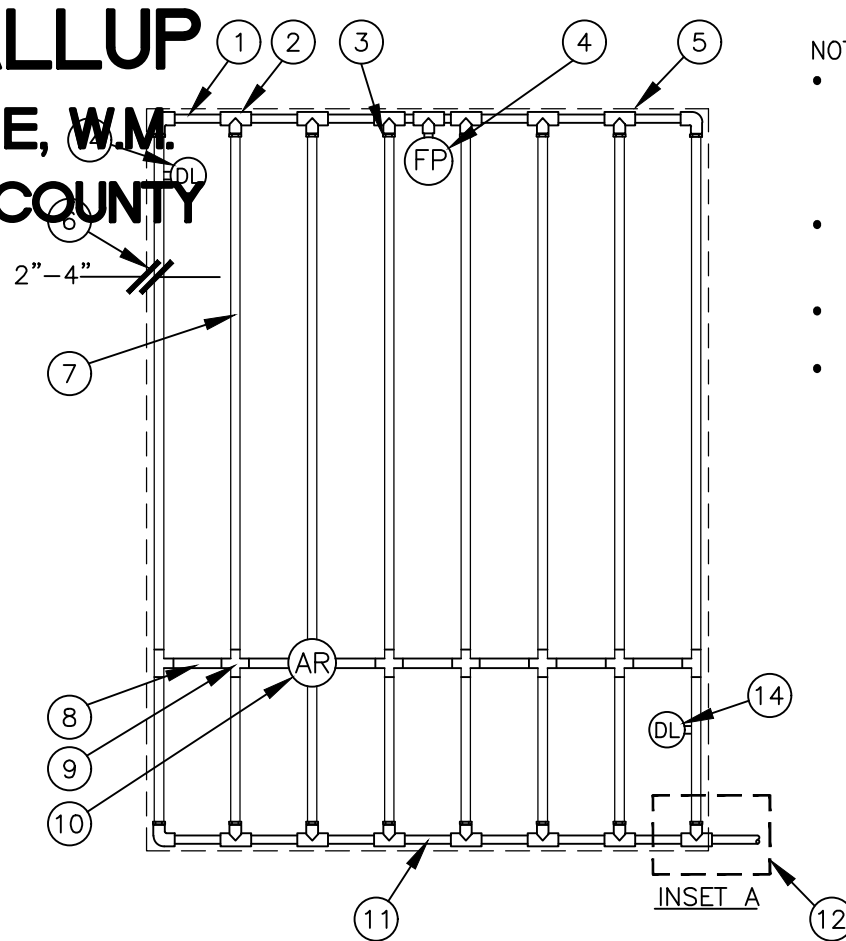


- 1 PVC EXHAUST HEADER
- 2 PVC SCH 40 TEE OR EL (TYPICAL)
- 3 BARB X MALE FITTING
- 4 FLUSH POINT (TYPICAL) SEE DETAIL
- 5 PERIMETER OF AREA
- 6 PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- 7 PVC SUPPLY PIPE FROM CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- 8 PVC SUPPLY MANIFOLD
- 9 CONNECTION FROM SUPPLY MANIFOLD TO DRIPLINE (TYPICAL)- SEE INSET A

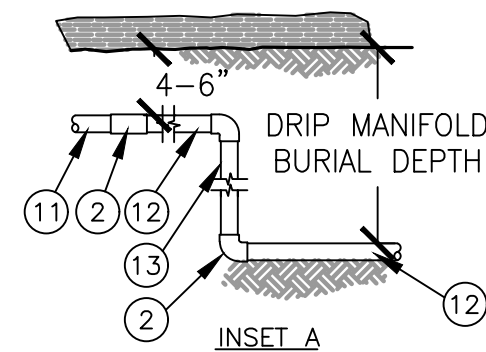


- NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE IRRIGATION SCHEDULE FOR SPACING.
 2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
 3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.
 4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

Dripline Maximum Lateral Lengths (Feet)						
Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow		Nominal Flow		Nominal Flow	
	(gph)	0.6	(gph)	0.6	(gph)	0.6
15	273	155	314	250	424	322
20	318	169	353	294	508	368
30	360	230	413	350	586	414
40	395	255	465	402	652	474
50	417	285	528	420	720	488
60	460	290	596	455	780	514



- NOTES:
- DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
 - LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
 - AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.
 - WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

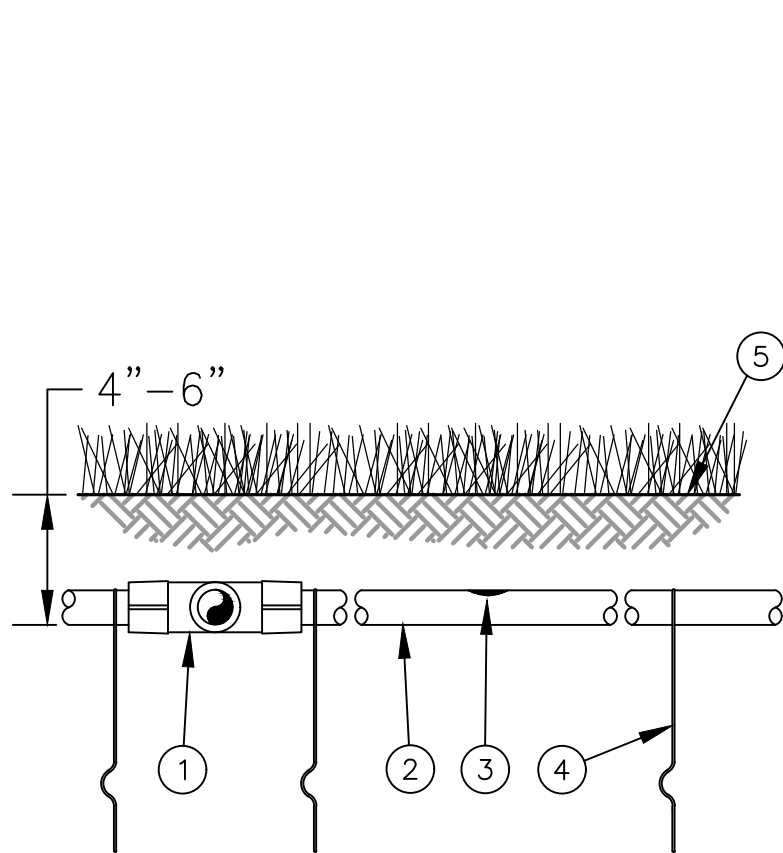


- 1 PVC EXHAUST HEADER
- 2 PVC SCH 40 TEE OR EL (TYPICAL)
- 3 BARB X MALE FITTING
- 4 FLUSH POINT (TYPICAL) SEE RAIN BIRD DETAIL 'FLUSH POINT WITH BALL VALVE'
- 5 PERIMETER OF AREA
- 6 PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- 7 SUB-SURFACE DRIPLINE
- 8 BLANK TUBING
- 9 BARB X BARB INSERT TEE OR CROSS
- 10 1/2" AIR RELIEF VALVE
- 11 PVC SUPPLY HEADER
- 12 PVC DRIP MANIFOLD FROM CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- 13 PVC SCH 40 RISER PIPE
- 14 DRIPLINE INDICATOR. SEE DETAIL FOR ADD'L INFO

Dripline Maximum Lateral Lengths (Feet)						
Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)	0.6	Nominal Flow (gph)	0.6	Nominal Flow (gph)	0.6
15	273	155	314	250	424	322
20	318	169	353	294	508	368
30	360	230	413	350	586	414
40	395	255	465	402	652	474
50	417	285	528	420	720	488
60	460	290	596	455	780	514

DRIPLINE CENTER FEED LAYOUT

NOT TO SCALE

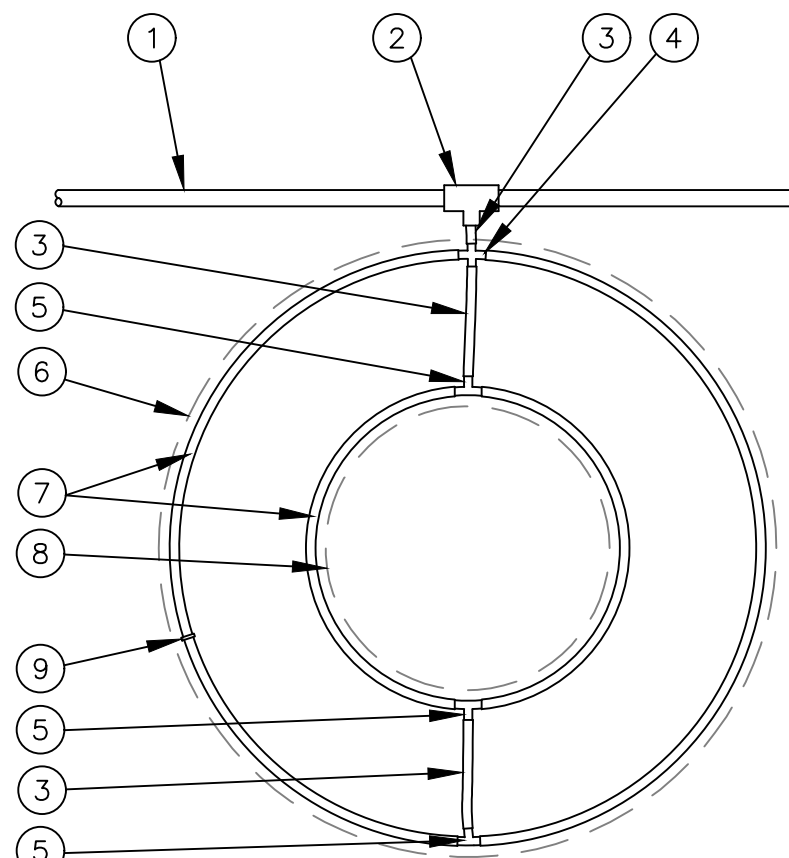


- 1 EASY FIT COMPRESSION TEE
- 2 SUB-SURFACE DRIPLINE
- 3 INLINE DRIP EMITTER
- 4 TIE DOWN STAKE
- 5 TURF/FINISH GRADE OR SHRUB BED WITH MULCH

- NOTES:
1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
 3. INSERTION PLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

DRIPLINE BURIAL

NOT TO SCALE



- 1 PVC DRIP MANIFOLD PIPE
- 2 PVC SCH 40 TEE OR EL
- 3 BLANK TUBING
- 4 BARB CROSS INSERT FITTING
- 5 BARB TEE INSERT FITTING
- 6 PROJECTED CANOPY LINE OF TREE
- 7 SUB-SURFACE DRIPLINE: SEE IRRIGATION SCHEDULE
- 8 PLACE AS SHOWN (LENGTH AS REQUIRED) ROOT BALL
- 9 TIE DOWN STAKE: QUANTITY AS REQUIRED, SEE NOTES 2-3 BELOW

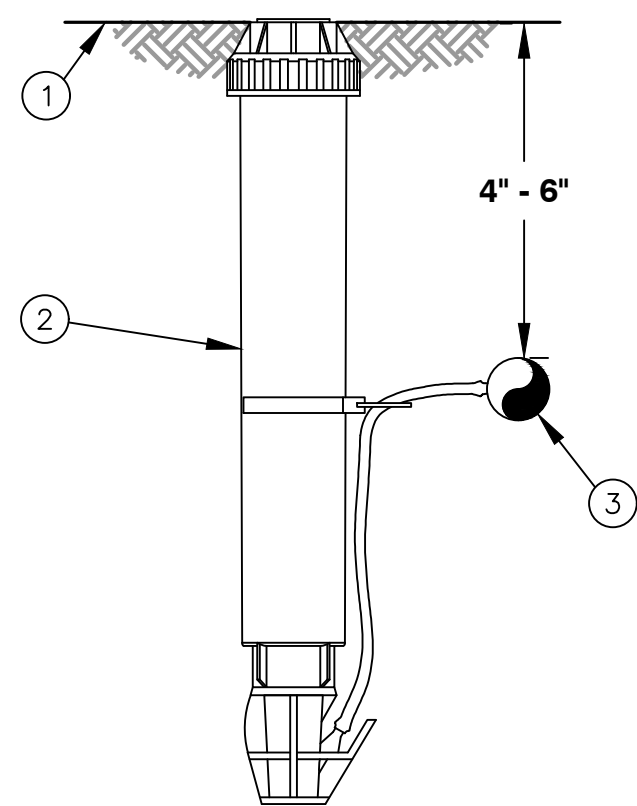
- NOTES:
1. DISTANCE BETWEEN LATERAL RINGS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, AND TREE CANOPY. SEE MANUFACTURER DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
 2. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 3. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

DRIPLINE AROUND TREE

NOT TO SCALE

DRIPLINE END FEED LAYOUT

NOT TO SCALE



- 1 FINISH GRADE/TURF
- 2 OPERATION INDICATOR
- 3 SUB-SURFACE DRIPLINE: SEE IRRIGATION SCHEDULE

- NOTE:
1. INSERT BARB TRANSFER FITTING DIRECTLY INTO DRIPLINE TUBING.
 2. VAN NOZZLE MAY BE SET TO CLOSED, OR IF IT IS DESIRED TO SEE SPRAY FROM THE NOZZLE, SET THE ARC TO 1/4 PATTERN. THE FLOW FROM THE NOZZLE, 0.3 GPM, SHOULD BE ACCOUNTED FOR IN THE SYSTEM DESIGN.

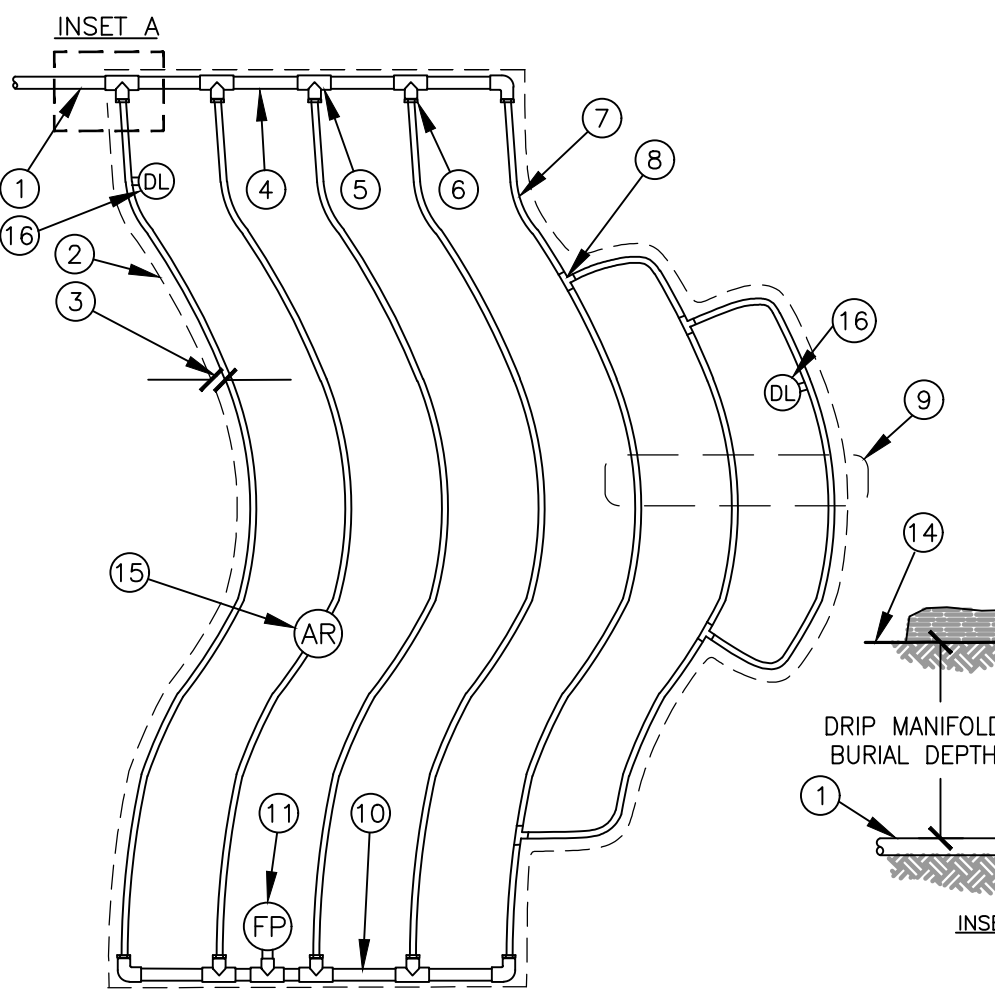
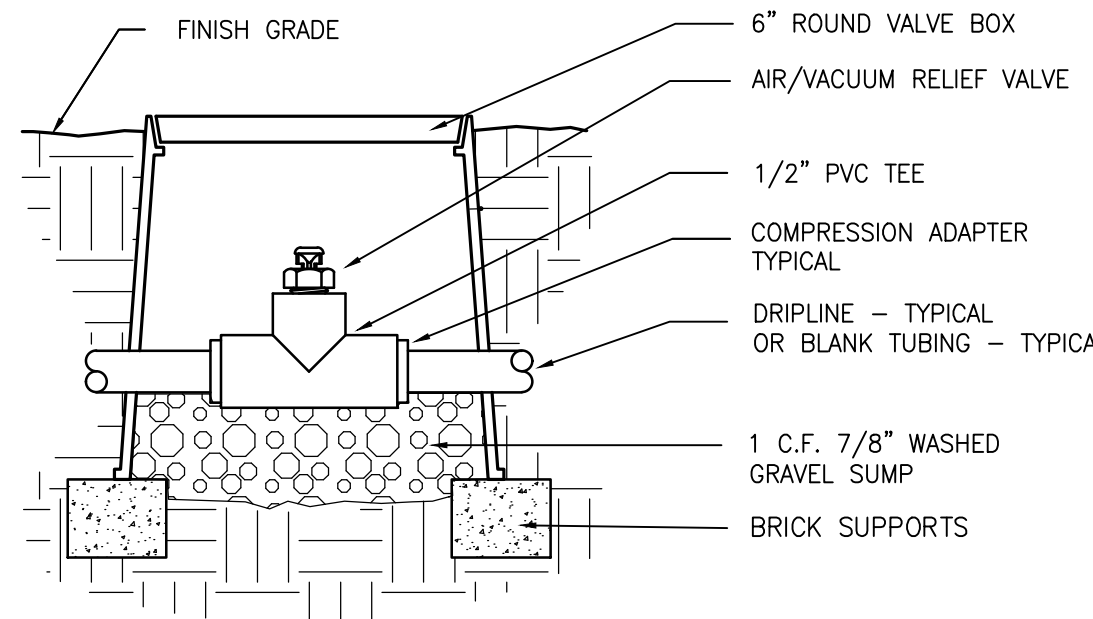
DRIP IRRIGATION DRIPLINE INDICATOR

NOT TO SCALE

- NOTE:
- AIR/VACUUM RELIEF VALVE CANNOT BE CONNECTED LOWER THAN DRIPLINE LATERALS. FOR USE ON ZONES OF 7 GPM OR LESS ONLY (PLUMBED TO TUBING).

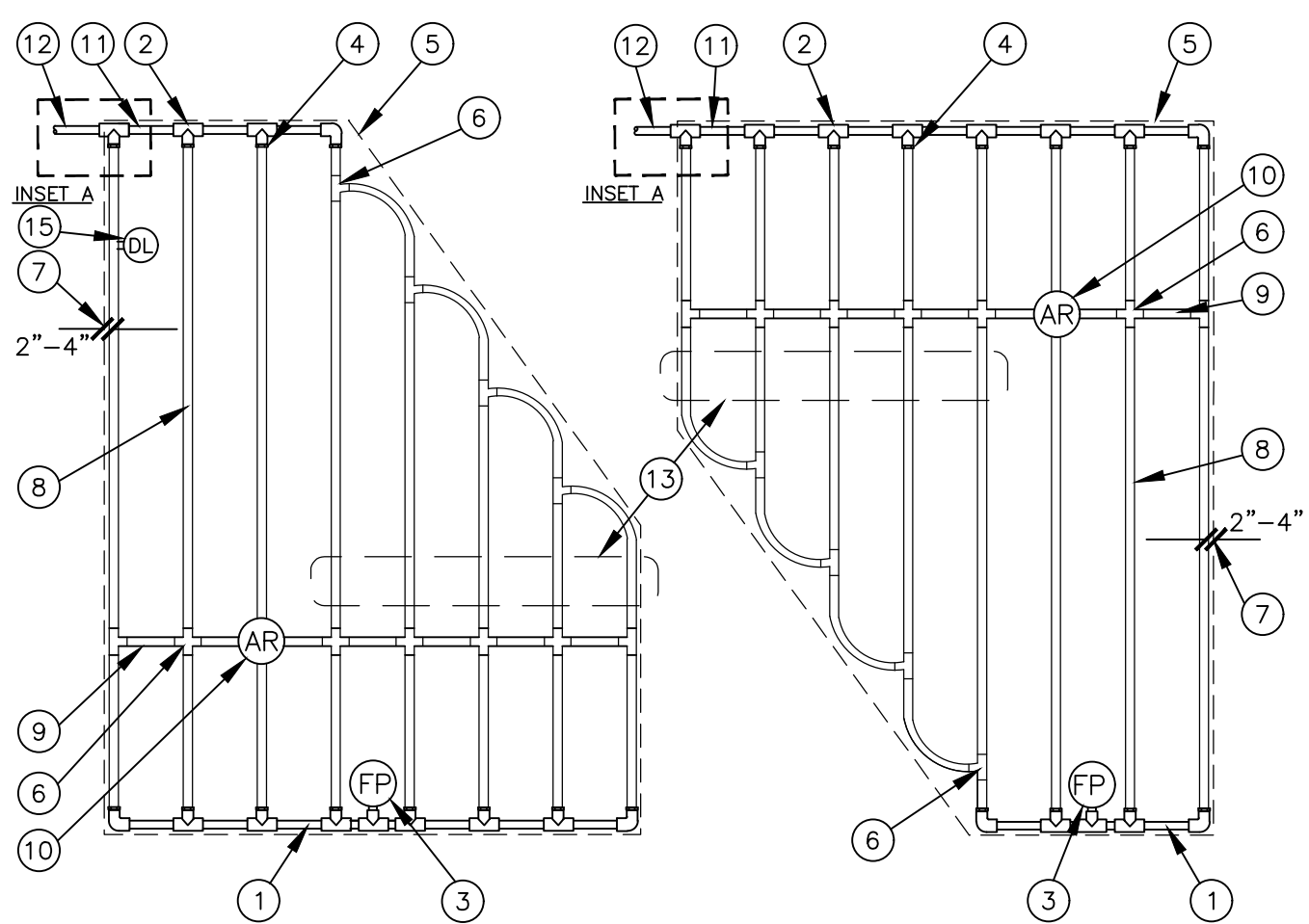
1/2" AIR/VACUUM RELIEF VALVE DETAIL

NOT TO SCALE



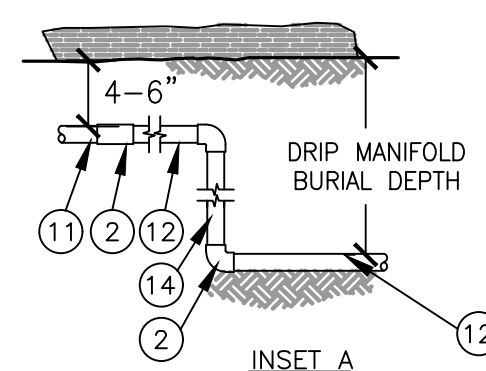
- NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE INSTALLATION SPECIFICATIONS FOR SPACING.
 2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.
 3. INSTALL AIR RELIEF VALVE AT HIGH POINTS IN DRIP LATERAL.
 4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

- 1 PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- 2 PERIMETER OF AREA
- 3 PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- 4 PVC SUPPLY MANIFOLD
- 5 PVC SCH 40 TEE OR EL (TYPICAL)
- 6 BARB X MALE FITTING
- 7 SUB-SURFACE DRIPLINE: SEE IRRIGATION SCHEDULE
- 8 ARB X BARB INSERT TEE
- 9 TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE
- 10 PVC FLUSH HEADER
- 11 FLUSH POINT: SEE DETAIL
- 12 PVC RISER PIPE
- 13 TURF OR MULCH
- 14 FINISH GRADE
- 15 1/2" AIR RELIEF VALVE: SEE DETAIL
- 16 DRIPLINE INDICATOR. SEE DETAIL FOR ADD'L INFO



- 1 PVC EXHAUST HEADER
- 2 PVC SCH 40 TEE OR EL (TYPICAL)
- 3 FLUSH POINT (TYPICAL) SEE DETAIL
- 4 BARB X MALE FITTING
- 5 PERIMETER OF AREA
- 6 BARB X BARB INSERT TEE OR CROSS
- 7 PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- 8 SUB-SURFACE DRIPLINE: SEE IRRIGATION SCHEDULE
- 9 BLANK TUBING
- 10 1/2" AIR RELIEF VALVE: SEE DETAIL
- 11 PVC SUPPLY MANIFOLD
- 12 PVC SUPPLY PIPE FROM CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- 13 TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE
- 14 PVC SCH 40 RISER PIPE
- 15 DRIPLINE INDICATOR. SEE DETAIL FOR ADD'L INFO

- NOTES:
- DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE MANUFACTURER DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
 - LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
 - AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.
 - WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.



DRIPLINE ODD CURVES LAYOUT

NOT TO SCALE

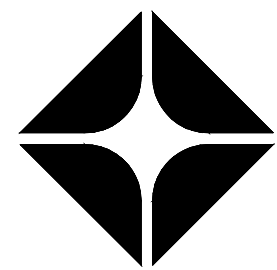
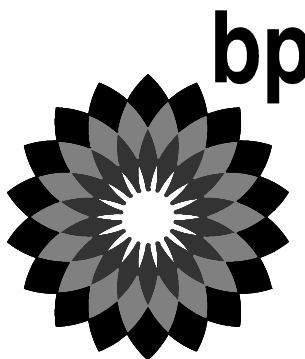
UTILITY CONFLICT NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POT-HOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE AT 811 48 HOURS IN ADVANCE AND THEN POT-HOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

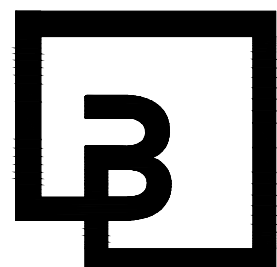


Know what's below.
Call before you dig.
Dial 811

CLIENT:



BP WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
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16			

SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: ALLIANCE ZADN:

CHECKED BY: BP REP:

DRAWN BY: ALLIANCE PM:

VERSION: PROJECT NO: 21730

DRAWING TITLE:

IRRIGATION DETAILS

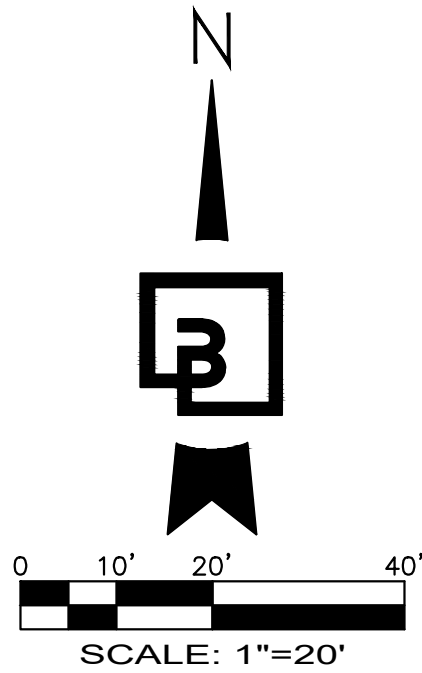
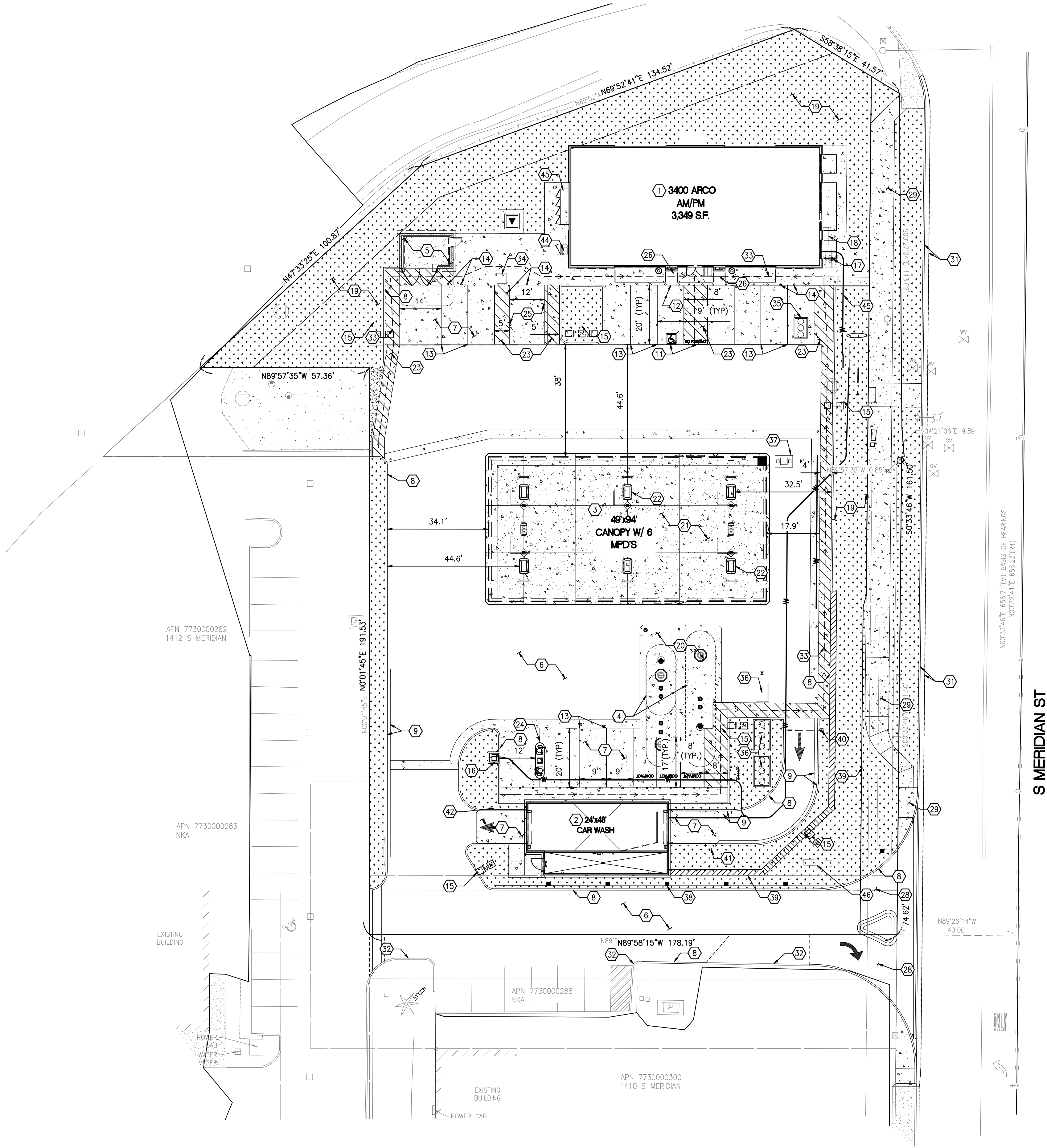
SHEET NO:

L-6

CONSTRUCTION NOTES:

1. CONVENIENCE STORE.
2. CAR WASH.
3. FUEL CANOPY.
4. UNDERGROUND STORAGE TANKS. SEE FUEL PLANS FOR DETAILS.
5. TRASH ENCLOSURE AND CONCRETE TRASH ENCLOSURE SLAB. REFER TO G1.4 AND G1.5
6. ON-SITE ASPHALT PAVEMENT. SEE CIVIL DRAWINGS.
7. ON-SITE CONCRETE PAVEMENT. SEE CIVIL DRAWINGS. PROVIDE EXPANSION AND CONTROL JOINTS PER CIVIL DRAWINGS.
8. BARRIER CURB. SEE CIVIL DRAWINGS.
9. CURB AND GUTTER. SEE CIVIL DRAWINGS.
10. CONCRETE SIDEWALK, WIDTH VARIES. SEE CIVIL DRAWINGS.
11. ACCESSIBLE PARKING STALL AND AISLE. SEE CIVIL DRAWINGS.
12. BOLLARD MOUNTED ACCESSIBLE PARKING STALL SIGNAGE. SEE CIVIL DRAWINGS.
13. PARKING STALL WITH 4" WIDE WHITE REFLECTIVE PAINT STRIPE (TYP.). SEE CIVIL DRAWINGS.
14. BOLLARD (TYP.). SEE CIVIL DRAWINGS.
15. LOT LIGHT. SEE DETAIL ON-SITE PHOTOMETRIC PLANS FOR MORE DETAILS. COORDINATE ALL CONDUIT RUNS, WIRING REQUIREMENTS, LOT LIGHT BASE, ETC. WITH ELECTRICAL PLANS. SEE CIVIL DRAWINGS.
16. AIR/WATER UNIT. ARCHITECTURAL PLANS FOR MORE DETAILS.
17. BICYCLE STORAGE. SEE CIVIL DRAWINGS.
18. SEATING BENCH.
19. LANDSCAPING. SEE LANDSCAPE PLANS.
20. CONCRETE TANK FUEL SLAB. SEE FUEL PLANS FOR DESIGN.
21. UNDER CANOPY CONCRETE SLAB. SEE ARCHITECTURAL PLANS FOR DETAILS.
22. FUEL DISPENSERS WITH HOOP BOLLARDS (TYP.). SEE FUEL PLANS FOR DETAILS.
23. PAVEMENT MARKINGS - 4" WIDE WHITE PAINTED STRIPES @ 2' O.C./45° ANGLE. SEE CIVIL DRAWINGS.
24. VACUUM UNIT. REFER TO ARCHITECTURAL CAR WASH DRAWINGS, 01/CWA4.2.
25. VAN ACCESSIBLE AND STANDARD EV CHARGING STATION, SEE CIVIL DRAWINGS.
26. TRASH RECEPTACLE (TYP).
27. CONCRETE DRIVEWAY PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.17. CIVIL DRAWINGS.
28. CONCRETE DRIVEWAY PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.16. CIVIL DRAWINGS.
29. CONCRETE SIDEWALK PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.01. SEE CIVIL DRAWINGS.
30. TYPE I CURB RAMP PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.19. SEE CIVIL DRAWINGS.
31. OFF-SITE CURB AND GUTTER PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.09. SEE CIVIL DRAWINGS.
32. PROTECT EXISTING CURB/CURB AND GUTTER TO REMAIN.
33. ACCESSIBLE PATH. REFER TO CIVIL GRADING PLAN FOR SLOPE REQUIREMENTS.
34. FREEWIRE EV CHARGING STATION TO BE INSTALLED
35. GREASE INTERCEPTOR. REFER TO CIVIL AND PLUMBING DRAWINGS.
36. WATER RECLAIM TANKS AND SEPARATOR. REFER TO CAR WASH, PLUMBING AND CIVIL DRAWINGS FOR CONTINUATION
37. SAND-OIL-WATER SEPARATOR. REFER TO CIVIL DRAWINGS.
38. VEHICLE GUARD RAIL. REFER TO CIVIL AND STRUCTURAL DRAWINGS.
39. RETAINING WALL. REFER TO CIVIL AND STRUCTURAL DRAWINGS.
40. CAR WASH OVERHEAD HEIGHT WARNING BAR. REFER TO ARCHITECTURAL CAR WASH DRAWINGS AND STRUCTURAL DETAILS.
41. CAR WASH PAY STATION. REFER TO ARCHITECTURAL CAR WASH DRAWINGS.
42. DRYER COUNT DOWN DISPLAY. REFER TO CAR WASH DRAWINGS.
43. PROPANE EXCHANGE CAGE
44. ELECTRICAL SWITCHGEAR. REFER TO ELECTRICAL DRAWINGS.
45. PROPOSED NEW MONUMENT SIGN. PERMITTED SEPARATELY.
46. EXISTING POLE SIGN TO BE RESURFACED WITH ARCO/AMPM SIGNAGE. PERMITTED SEPARATELY.

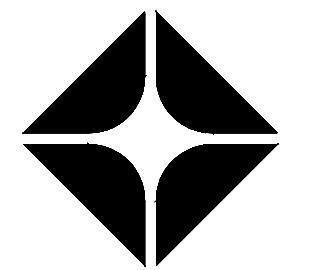
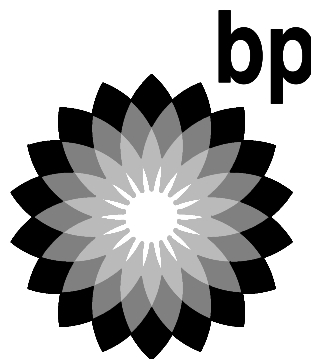
ARCHITECTURAL SITE PLAN



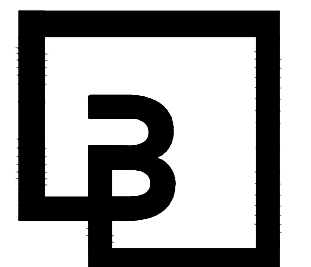
GENERAL NOTES

1. SEE CIVIL FOR ADDITIONAL INFO
2. SEE ELECTRICAL FOR ADDITIONAL INFO

CLIENT:



BP WEST COAST PRODUCTS, LLC

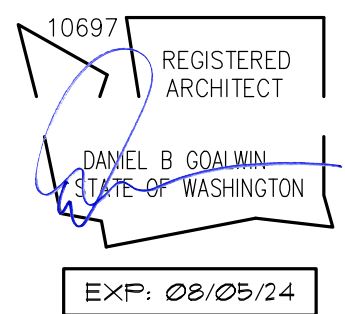


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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

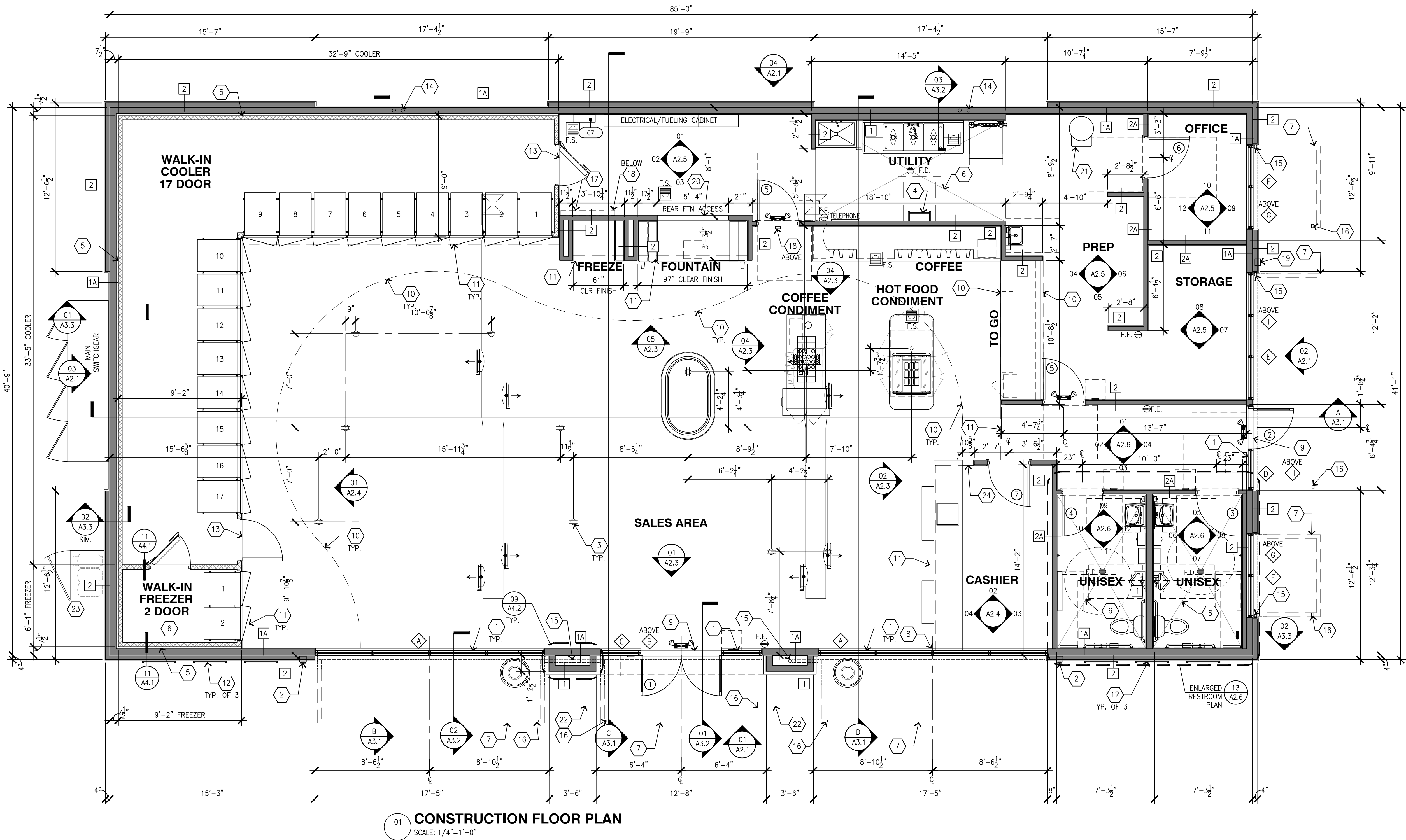
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VERSION:	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL
SITE PLAN

SHEET NO:

AS1.0



ROOM FINISH SCHEDULE

INTERIOR FINISHES	SALES	CASHIER	RESTROOMS	OFFICE	PREP/UTILITY	WALK-IN
FLOOR	GLAZED PORCELAIN TILE REFER TO FINISH CALLOUT ON A1.2.			QUARRY TILE REFER TO FINISH CALLOUT ON A1.2.		CLEAR CONCRETE SEALER REFER TO FINISH CALLOUT ON A1.2.
BASE	CERAMIC SANITARY COVE BASE REFER TO FINISH CALLOUT ON A1.2.		PORCELAIN COVE BASE REFER TO FINISH CALLOUT ON A1.2.	QUARRY SANITARY COVE BASE. REFER TO FINISH CALLOUT ON A1.2.		INTEGRAL METAL COVE BASE WITH 3/8" RADIUS, BY COOLER MFR. REFER TO SPECIFICATION ON Q1.2.
WALLS	PAINTED SMOOTH FINISH 5/8" GYPSUM BOARD. REFER TO CALLOUT ON SHEET A2.3 – A2.6.		WALL TILE OVER 5/8" WATER RESISTANT GYPSUM BOARD. REFER TO CALLOUT ON A2.6.	PAINTED SMOOTH FINISH 5/8" GYPSUM BOARD. REFER TO CALLOUT ON SHEET A2.6.	FRP OVER 5/8" WATER RESISTANT GYPSUM BOARD. REFER TO CALLOUT ON A2.5.	STUCCO-GALVALUM. BY COOLER MFR. REFER TO SPECIFICATION ON Q1.2.
FASCIA/SOFFIT	FASCIA PAINTED SMOOTH FINISH 5/8" GYPSUM BOARD. REFER TO CALLOUT ON A2.3 & A2.4. SOFFIT PAINTED SMOOTH FINISH 5/8" WATER RESISTANT GYPSUM BOARD. REFER TO CALLOUT ON A1.3.		NOT APPLICABLE			
CEILING	PAINTED PLYWOOD AND OPEN WEB TRUSSES. REFER TO CALLOUT ON A1.3.	WASHABLE SUSPENDED WHITE CEILING TILE REFER TO CALLOUT ON A1.3.				STUCCO-GALVALUM. BY COOLER MFR. REFER TO CALLOUT ON Q1.2 AND A1.3.

GENERAL NOTES

- ALL DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
- ALL DENOTED DIMENSIONS ARE TO BE USED. PLANS SHALL NOT BE SCALED.
- EXTERIOR WALL ARE 2x6. INTERIOR WALLS 2x4 U.N.O., SEE STRUCTURAL PLANS FOR FRAMING REQUIREMENTS.
- SEE PLUMBING PLANS FOR DIMENSIONS TO PLUMBING FIXTURES
- REFER TO SHEET Q1.1 FOR FOR EQUIPMENT PLAN.
- REFER TO SHEET Q2.1 FOR EQUIPMENT SCHEDULE.
- ALL EQUIPMENT SHALL MEET ACCESSIBILITY REACH RANGE REQUIREMENTS.
- PROVIDE PLASTIC CORNER GUARDS AT EDGES BELOW 6'-0".
- ALL COUNTERTOPS SHALL BE MAX. 34" A.F.F. WITH A 3'-FOOT WIDE TRANSACTION AREA AT CASHIER. CONTRACTOR SHALL COORDINATE WORK WITH CABINET INSTALLER FOR CABINET INSTALLATION. CONTRACTOR TO ROUTE UTILITIES THROUGH CABINETS. CONTACT CABINET INSTALLER FOR SITE SPECIFIC CABINET SHOP DRAWINGS.
- 4" HIGH BACKSPLASH AT ALL COUNTERTOPS THAT TERMINATE AT WALL. BACKSPLASH TO MATCH COUNTERTOP MATERIAL.
- THE CONTRACTOR SHALL ASSIST STORE PERSONNEL BY ASSEMBLING MERCHANDISE GONDOLAS AND SHELVING AS SHOWN ON Q1.1.
- ALL EQUIPMENT AND CABINETS SHALL BE FREE OF SHARP EDGES. CONTACT MANUFACTURER OR PREP EDGES FOR SAFETY.
- CONTRACTOR SHALL ROUTE ALL CONDENSATE DRAIN LINES TO FLOOR SINKS.
- CONTRACTOR SHALL INSTALL NEW PARTITIONS/WALLS WITH GYPSUM WALL BOARD AND FINISHES AS NOTED ON FINISH SCHEDULE AND INTERIOR ELEVATIONS ON SHEET A2.3 THRU A2.7. ALL PARTITIONS/WALLS SHALL BE BRACED FOR LATERAL FORCES, PER BUILDING CODE REQUIREMENTS.
- FLAME SPREAD CLASSIFICATIONS FOR INTERIOR WALLS SHALL COMPLY WITH LOCAL CODES.
- FIRE EXTINGUISHERS (2A:10B:C) SHALL BE INSTALLED AT SALES COUNTER, BACK ROOM, SALES AREA, & FUEL CANOPY LOCATIONS IF NOT SHOWN ELSEWHERE ON THESE DRAWINGS. VERIFY WITH OWNER FOR DETAILS, CONFIRM FINAL DETAILS WITH LOCAL FIRE INSPECTOR.
- CONTRACTOR SHALL ASSIST THE OWNER WITH STORE EQUIPMENT TO PREPARE A DELIVERY STAGING AREA. COORDINATE WITH OWNER FOR THE DELIVERY SCHEDULE AND SHIPPING DAMAGES, AS APPLICABLE.
- CONTRACTOR SHALL PROVIDE A CLEAN, SMOOTH SURFACE FOR GRAPHICS INSTALLATION.
- ALL DIMENSIONS SHALL BE FIELD VERIFIED BY CONTRACTOR FROM CABINET AND EQUIPMENT CLEARANCES PRIOR TO WALL ERECTION. DISCREPANCIES SHALL BE DIRECTED TO OWNER.
- WATER HEATERS SHALL BE CAPABLE OF DELIVERING MIN. 120° WATER TO ALL SINKS.
- ALL FLOOR/WALL TILE AND COVE BASE SHALL BE INSTALLED BY THE GENERAL CONTRACTOR ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
- ALL DOORS MUST HAVE NO MORE THAN 5 LBS OPENING FORCE AND MUST HAVE A SWEEP PERIOD OF 3 SECONDS TO CLOSE FROM 70° OPEN TO 3° FROM THE LATCH.
- CARBONATOR BACK-FLOW PREVENTOR DRAIN LINE OUTLET SHALL BE TO FLOOR SINK PROVIDED FOR THIS AREA.

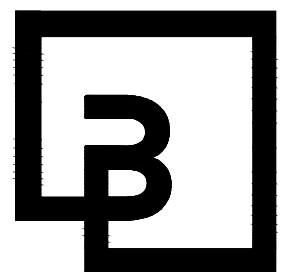
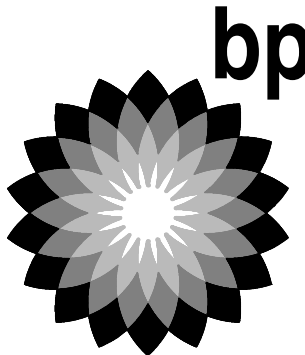
KEYED NOTES

- ALUMINUM ENTRANCE AND STOREFRONT SYSTEM, REFER TO SHEET A5.1 & SPECIFICATION.
- EMERGENCY SWITCH OFF, VERIFY LOCATION PRIOR TO INSTALLATION. REFER TO ELECTRICAL PLANS FOR SPECIFICATION.
- FLOOR RECEPTACLES, REFER TO ELECTRICAL PLANS.
- ROOF LADDER PER DETAIL 07/A4.1.
- 1" MINIMUM AIR GAP AT PREFABRICATED COOLER/FREEZER.
- DEPRESSED SLAB, REFER TO FOUNDATION PLAN.
- LINE OF CANOPY ABOVE.
- BREAK METAL CLOSURE AT BULKHEAD AND STOREFRONT VERTICAL MULLION. REFER TO DETAIL 11/A4.2
- THRESHOLD, REFER TO DOOR SCHEDULE ON SHEET A5.1.
- LINE OF SOFFIT ABOVE.
- BULKHEAD ABOVE.
- WALL SIGNS.
- TRANSITION STRIP.
- ROOF DRAIN AND OVERFLOW, REFER TO CIVIL PLANS FOR CONTINUATION.
- CANOPY DOWNSPOUT, REFER TO CIVIL PLANS FOR CONTINUATION.
- CANOPY OVERFLOW ABOVE, REFER TO DETAIL 09/A4.2.
- FUTURE SOLAR EQUIPMENT.
- CO2 SAFETY MONITORING EQUIPMENT, REFER TO SHEETS Q1.1 AND Q2.1 FOR LOCATION AND SPECIFICATION.
- RECESSED STAINLESS STEEL FILL BOX WITH QUICK-DISCONNECT MALE FILL AND VENT HOSE CONNECTION FOR CO2 TANK.
- 64"x60" FOUNTAIN ACCESS OPENING @ 34" A.F.F.
- WATER HEATER PLATFORM, REFER TO DETAIL 06/A4.2 & ELEVATIONS 08 & 09 ON SHEET A2.5.
- NATURAL BROWN STONE AGGREGATE TRASH RECEPTACLE WITH BROWN FLAT UID, 35 GAL. CAPACITY, SUPPLIER: TREETOP PRODUCTS, MODEL: 4CR5127, PLASTIC LINER MODEL: 4CR5128. VERIFY LOCATION WITH CIVIL PLANS.
- PORTABLE PROPANE TANK DISPLAY, REFER TO SHEETS Q1.1 AND Q2.1 FOR SPECIFICATION.
- PARTIAL HEIGHT WALL, REFER TO THE INTERIOR ELEVATIONS

LEGEND

- WOOD FRAMED WALL
- PREFABRICATED COOLER/FREEZER WALL
- 2x6 STUDS @ 16"o.c.
- 2x6 STUDS @ 16"o.c. W/ THERMAL INSULATION
- 2x4 STUDS @ 16"o.c.
- 2x4 STUDS @ 16"o.c. W/ SOUND BATT INSULATION
- DOOR SYMBOL, REFER TO SHEET A5.1 FOR DETAILS
- WINDOW SYMBOL, REFER TO SHEET A5.1 FOR DETAILS

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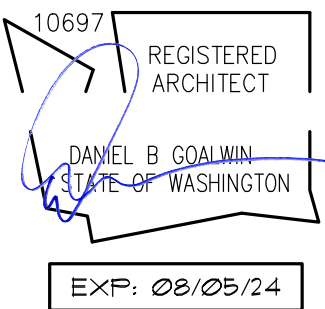


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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98571

FACILITY #7184

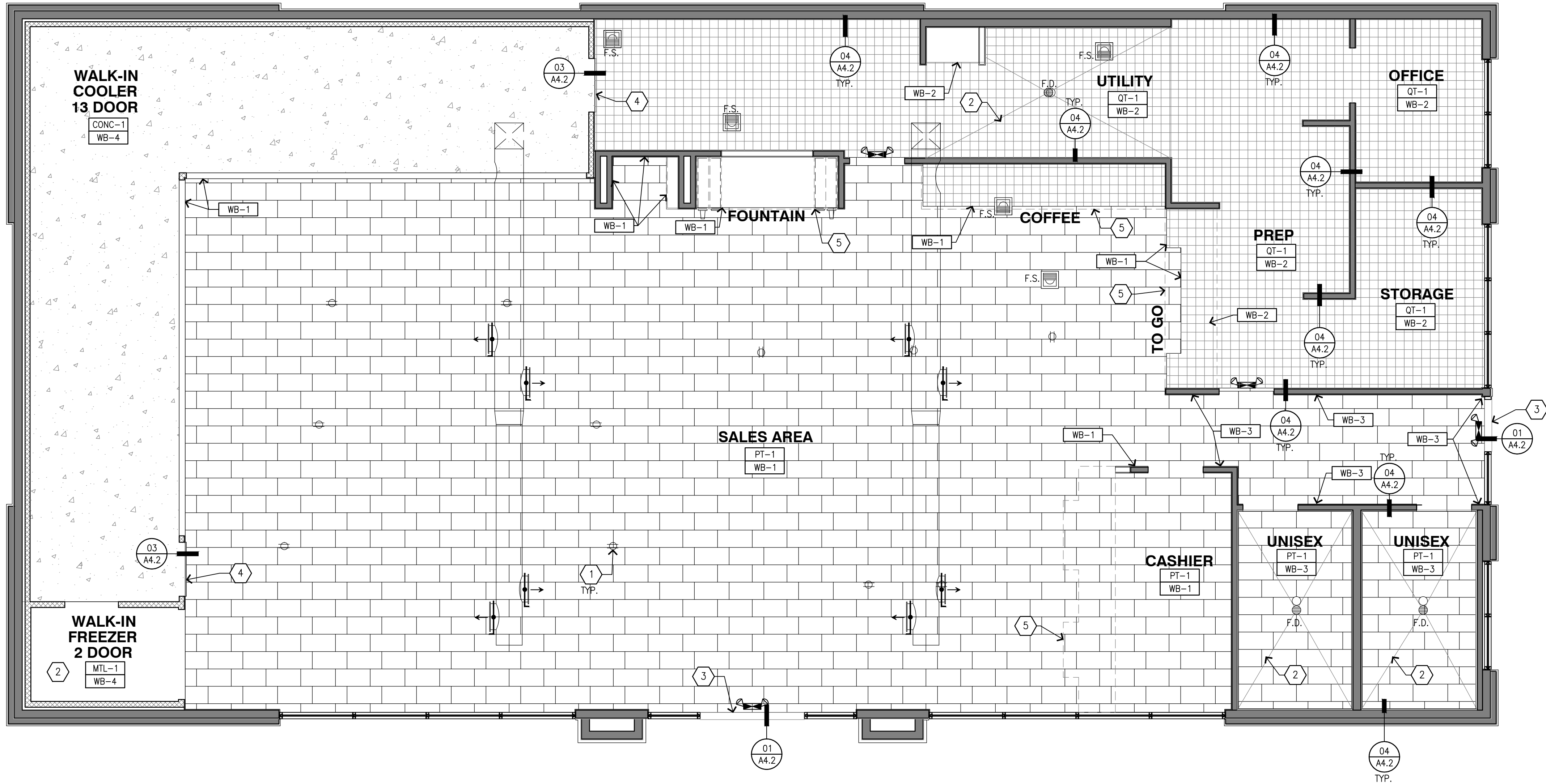
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VERSION:	PROJECT NO: 21730

DRAWING TITLE:

CONSTRUCTION FLOOR PLAN

SHEET NO:

A1.1



01
-
FLOOR FINISH PLAN
SCALE: 1/4"=1'-0"

FLOOR FINISH NOTES

- FLOOR FINISH TRANSITIONS BETWEEN ROOMS SHALL OCCUR UNDER CENTER OF DOOR WHERE APPLICABLE.
- ALL FLOORS SHALL BE CLEANED AND SEALED PER MANUFACTURERS RECOMMENDATIONS. ALL FLOORS UNDER SALES SHELVING SHALL BE CLEANED PRIOR TO SHELF PLACEMENT. THE CONTRACTOR SHALL ARRANGE A SECOND CLEANING JUST PRIOR TO STORE OPENING.
- CONTINUOUS TILE COVE BASE TYPICAL THROUGHOUT FOOD SERVICE AREAS AND RESTROOMS. REFER TO PLAN FOR SPECIFIC LOCATIONS.
- PREFERRED FULL TILE FLOORING AT CENTER OF STOREFRONT ENTRANCE.
- PRIOR TO TILE INSTALLATION, REMOVE DUST, CURING COMPOUNDS, OIL AND OTHER FOREIGN SUBSTANCES FROM SURFACES.
- FLOOR J-BOXES AND CLEANOUTS THROUGHOUT THE STORE ARE TO BE FLUSH WITH FINISH FLOOR MATERIAL.

KEYED NOTES

- FLOOR RECEPTACLES, REFER TO ELECTRICAL PLANS.
- DEPRESSED SLAB, REFER TO FOUNDATION PLAN.
- HEAVY DUTY THRESHOLD, REFER TO DOOR SCHEDULE ON SHEET A5.1
- HEAVY DUTY TRANSITION STRIP, MFR: NGP, MODEL: 325HDx37"L, FINISH: ALUMINUM MILL
- EDGE OF COUNTER

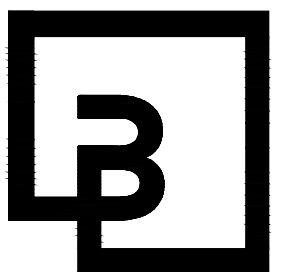
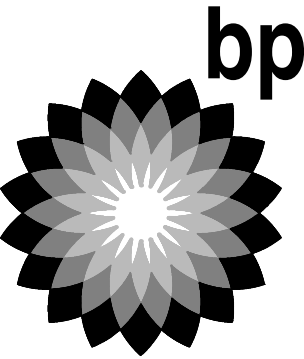
FLOOR FINISH

- PT-1** PORCELAIN TILE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF08 CHOCOLATE
SIZE: 12"x24"
PATTERN: 33% STAGGERED BRICK-JOINT, VERTICAL ORIENTATION
GROUT: 1/8" NON-SANDED #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS
TILE & GROUT SEALER: AQUA MIX SEALER'S CHOICE GOLD BY CUSTOM BUILDING PRODUCTS
INSTALLATION: PREFERRED START POINT AT CENTER OF ENTRY. ADJUST AS NEEDED SO NO LESS THAN 3" TILE AT WALLS.
CLEANING PRODUCTS: FILA-DETERDEK 5 LITER (INITIAL CLEANING BY GC)
*TILES TO BE BACK BUTTERED
- CONC-1** CONCRETE SEALER
MFR: L.W. SCOFIELD COMPANY
PRODUCT: CURESEAL-W (SEMI-GLOSS)
COLOR: CLEAR
- QT-1** QUARRY TILE
MFR: DALTILE
PRODUCT: ABRASIVE GRAIN FIELD TILE
COLOR: 0040 RED BLAZE
SIZE: 6"x6"
GROUT: 3/8" SANDED #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS
CLEANING PRODUCTS: FILA-DETERDEK 5 LITER (INITIAL CLEANING BY GC)
*TILES TO BE BACK BUTTERED
*SMOOTH TILE UNDER EQUIPMENT
- MTL-1** .05" SMOOTH ALUMINUM W/ NON-SKID STRIP

WALL BASE

- WB-1** CERAMIC SANITARY COVE BASE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF08 "CHOCOLATE"
SHAPE: P36C9T (CORNER- PC36C9T)
SIZE: 6"x12"
GROUT: 1/8" NON-SANDED #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS
CLEANING PRODUCTS: FILA-DETERDEK 5 LITER (INITIAL CLEANING BY GC)
*TILES TO BE BACK BUTTERED
- WB-2** QUARRY COVE BASE
MFR: DALTILE
PRODUCT: QUARRY
COLOR: 0040
SHAPE: Q-3565
SIZE: 5"x6"
GROUT: 3/8" SANDED #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS
CLEANING PRODUCTS: FILA-DETERDEK 5 LITER (INITIAL CLEANING BY GC)
*TILES TO BE BACK BUTTERED
- WB-3** PORCELAIN COVE BASE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF11 "NOCE"
SHAPE: P36C9T (CORNER- PC36C9T)
SIZE: 6"x12"
GROUT: 1/8" NON-SANDED #386 OYSTER GRAY BY CUSTOM BUILDING PRODUCTS
CLEANING PRODUCTS: FILA-DETERDEK 5 LITER (INITIAL CLEANING BY GC)
*TILES TO BE BACK BUTTERED
- WB-4** INTEGRAL METAL COVE BASE WITH 3/8" RADIUS

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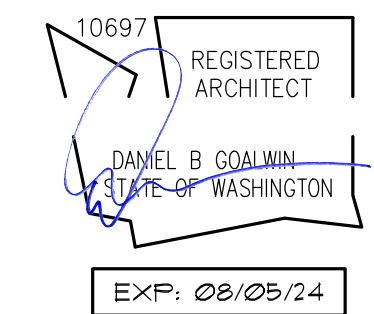


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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

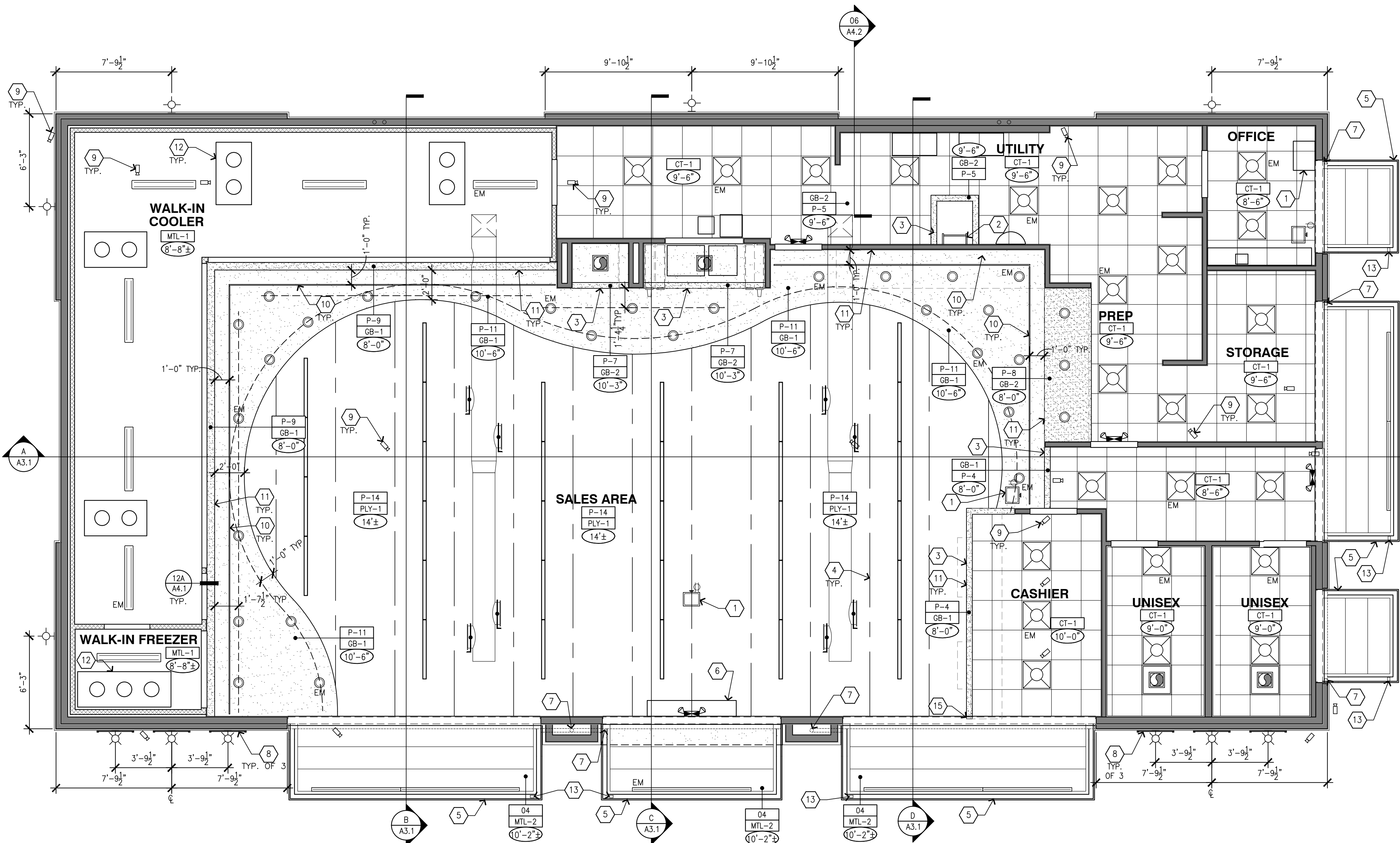
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VERSION:	PROJECT NO: 21730

DRAWING TITLE:

FLOOR
FINISH PLAN

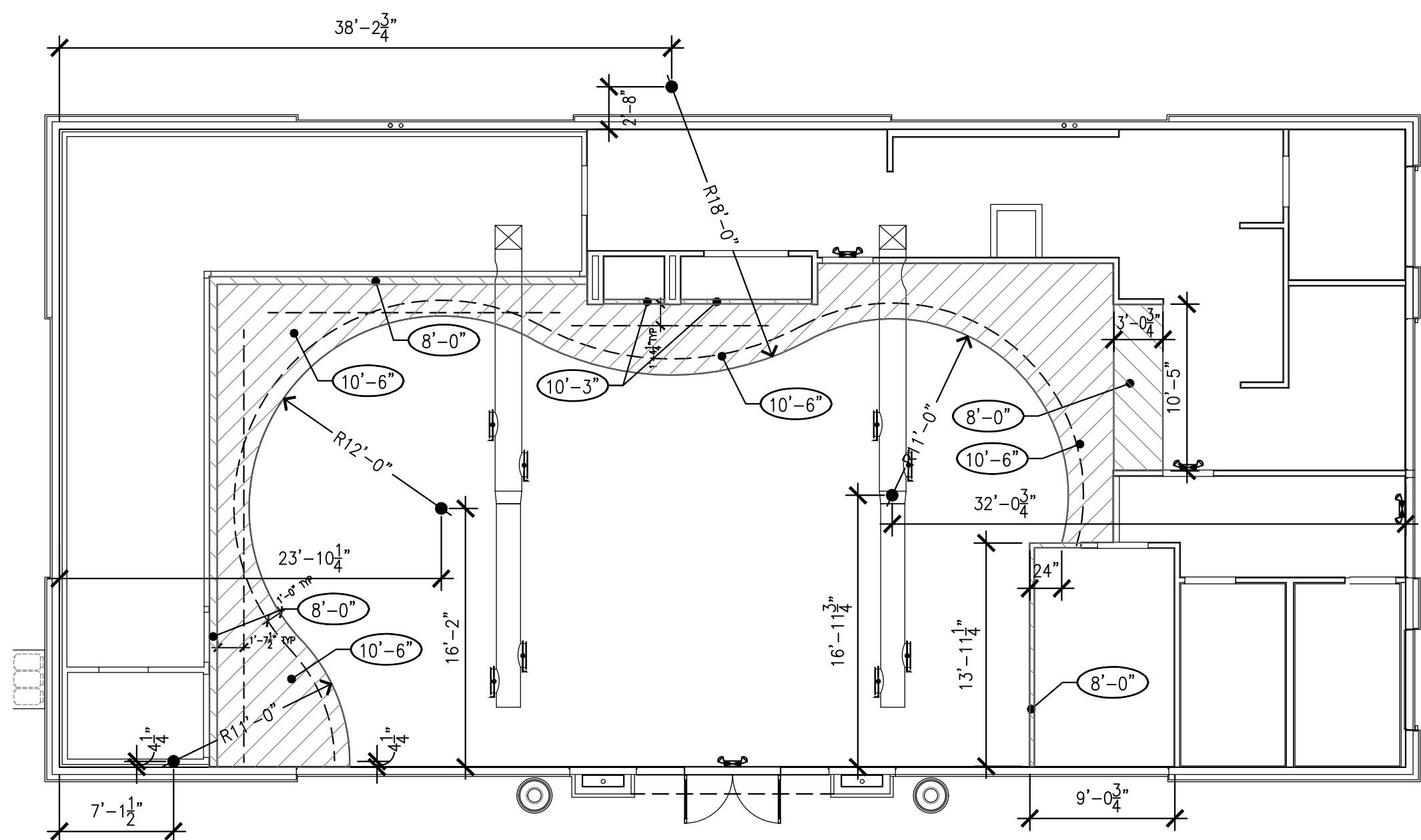
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01 REFLECTED CEILING PLAN

SCALE: 1/4"=1'-0"



02 SOFFIT LAYOUT

SCALE: 1/8"=1'-0"

SECURITY NOTE

- ALL CAMERA AND MONITOR LOCATIONS TO BE CONFIRMED WITH OWNER OR SECURITY VENDOR PRIOR TO INSTALLATION. ADDITIONAL MONITOR AT CASHIER AREA OR CAMERAS MAY BE REQUIRED.

EMERGENCY EGRESS LIGHTING

ELECTRICAL CONTRACTOR SHALL VERIFY THE FOLLOWING PRIOR TO INSTALLING NEW EMERGENCY LIGHTING AND PROVIDE THIS INFORMATION ON THEIR PERMIT SUBMITTAL PLANS:
EMERGENCY LIGHTING SHALL BE ARRANGED TO PROVIDE AN INITIAL ILLUMINATION THAT IS AT LEAST AVERAGE OF 1 FOOT-CANDLE AND A MINIMUM AT ANY POINT OF 0.1 FOOT-CANDLE MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOT-CANDLES AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOT-CANDLES AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40:1 SHALL NOT BE EXCEEDED.
EMERGENCY POWER SYSTEM SHALL BE PROVIDED FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR.

ELECTRICAL NOTE

- ALL OVERHEAD CONDUITS AT OPEN CEILING SHALL BE FASTENED TO UNDERSIDE OF ROOF DECKING.

GENERAL NOTES

- ALL DIMENSIONS SHOWN ON REFLECTED CEILING PLAN ARE FROM FINISHED FACE, UNLESS NOTED OTHERWISE.
- REFER TO ELECTRICAL LIGHTING PLAN FOR LIGHTING SPECIFICATIONS AND FIXTURE MOUNTING HEIGHTS.
- REFER TO SYMBOL (X"-X") FOR ALL CEILING HEIGHTS ON PLAN.

SUSPENDED CEILING NOTE

- SUSPENDED CEILING SYSTEM MUST BE HEAVY DUTY SYSTEM CONFORMING TO ASTM C 835, ASTM C 836, AND IN ACCORDANCE NORTHWEST WALL & CEILING BUREAU TECHNICAL BULLETIN NO. 401.
- SUSPENDED MEMBER GRID MUST BE ATTACHED TO TWO ADJACENT WALLS ON MINIMUM 2" WIDE WALL MOLDINGS OR CLOSURE ANGLES AT THESE WALLS.
- ENDS OF SUSPENDED MEMBER MAIN RUNNERS AND CROSS RUNNERS MUST BE TIED TOGETHER TO PREVENT DISLOCATION.
- LIGHT FIXTURES 10lbs. to 55lbs. IN WEIGHT MUST BE SUPPORTED TO STRUCTURE BY AT LEAST TWO #12 GAUGE HANGER WIRES, EACH AT TWO OPPOSING SIDES, AND SHALL BE ATTACHED TO SUSPENDED MEMBER GRID AT TWO OPPOSING SIDES. WIRES MAY BE SLACK.
- HVAC TERMINALS OR REGISTERS 20lbs. TO 56lbs. IN WEIGHT SHALL BE POSITIVELY ATTACHED TO SUSPENDED MEMBER MAIN RUNNERS, OR TO CROSS RUNNERS WITH EQUAL CARRYING CAPACITY, AND MUST ALSO BE SUPPORTED TO STRUCTURE BY AT LEAST TWO #12 GAUGE HANGER WIRES AT TWO OPPOSING SIDES. WIRES MAY BE SLACK.
- EMT CONDUIT - SIZE AND LENGTHS: 1/2" EMT CONDUIT - UP TO 5'-10"; 3/4" EMT CONDUIT - UP TO 7'-8"; 1" EMT CONDUIT - UP TO 9'-9" OR METAL STUDS - SIZE AND LENGTH: SINGLE 1 1/2" METAL STUD (20GA) - UP TO 12'-0"

KEYED NOTES

- INSTALL SECURITY MONITOR, REFER TO SECURITY NOTE
- ROOF HATCH LADDER, REFER TO DETAIL 07/A4.1
- BULKHEAD FRAMING
- OPEN WEB TRUSSES, REFER TO STRUCTURAL PLANS
- STEEL CANOPY, REFER TO STRUCTURAL PLANS
- AIR CURTAIN, REFER TO MECHANICAL PLANS
- CANOPY DOWNSPOUTS, REFER TO CIVIL PLANS FOR CONTINUATION
- EXTERIOR WALL SIGNS, UNDER SEPARATE PERMIT
- SECURITY CAMERA, REFER TO SECURITY NOTE
- LINEAR GRAPHICS FIXTURE WITH REVEAL, REFER TO DETAIL 07/A4.2
- VINYL GRAPHIC PROVIDED & INSTALLED BY SIGN CONTRACTOR
- WALK-IN COOLER/FREEZER EVAPORATOR, REFER TO SHEET Q1.2
- CANOPY OVERFLOW, REFER TO DETAIL 09/A4.2
- TYPE II HOOD, REFER TO MECHANICAL PLANS
- BREAK METAL CLOSURE AT BULKHEAD AND STOREFRONT VERTICAL MULLION. REFER TO DETAIL 11/A4.2

FINISH SYMBOLS

PAINT COLOR (SEMI-GLOSS REQUIRED OVER ALL FOOD SERVICE AREAS AND RESTROOM)

- P-4 BENJAMIN MOORE, 1079, "BAYSHORE BEIGE" EGG SHELL FINISH
- P-5 BENJAMIN MOORE, 2121-70, "CHANTILLY LACE" SEMI-GLOSS FINISH
- P-6 BENJAMIN MOORE, 2096-30, "GRANDFATHER CLOCK BROWN" SEMI-GLOSS FINISH
- P-7 BENJAMIN MOORE, 2049-50, "SPECTRA BLUE" SEMI-GLOSS FINISH
- P-8 BENJAMIN MOORE, 2019-30, "SUNFLOWER" SEMI-GLOSS FINISH
- P-9 BENJAMIN MOORE, 768, "ATLANTIS BLUE" EGG SHELL FINISH
- P-10 BENJAMIN MOORE, PM-28, "LINEN WHITE" SEMI-GLOSS FINISH
- P-11 BENJAMIN MOORE, 2132-60, "METALLIC SILVER" EGG SHELL FINISH
- P-14 BENJAMIN MOORE, 2108-40, "STARDUST" EGG SHELL FINISH
- 04 HIGH HIDING WHITE (TO MATCH FORECOURT CANOPY PANELS) BENJAMIN MOORE, 2123-70, "ICE MIST" - P28 DTM

SUSPENDED CEILING

- CT-1 WASHABLE SUSPENDED CEILING TILE
USG, 3270, "CLIMAPLUS VINYL", 24"x48"x1/2" (WHITE)
ACOUSTICAL SUSPENSION SYSTEM
DOWN, DX, 1/8" EXPOSED TEE SYSTEM (WHITE)
- NOTE: USE USG VARIABLE LOCKING HOLD-DOWN CLIP (CATALOG NUMBER- P2) IN OFFICE AND RESTROOM
SUSPENDED CEILING SYSTEM TO SECURE CEILING TILE.

SUBSTRATE

- GB-1 5/8" GYPSUM BOARD, SMOOTH FINISH
- GB-2 5/8" MOISTURE RESISTANT GYPSUM BOARD, SMOOTH FINISH
- PLY-1 PLYWOOD, REFER TO STRUCTURAL FOR SPECIFICATION

METAL

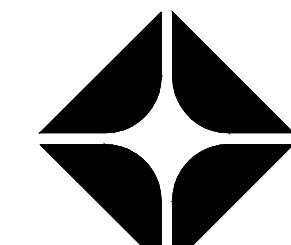
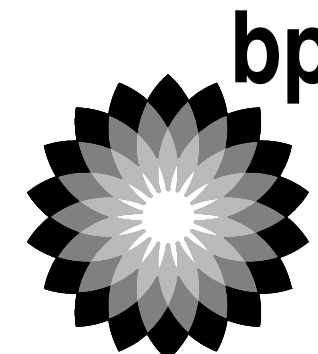
- MTL-1 STUCCO-GALVALUM, REFER TO Q1.2 SHEET
- MTL-2 PRE-FINISHED ROLLED ROOFING PANELS, REFER TO A7.3 SPECIFICATION SHEET.

CEILING LEGEND

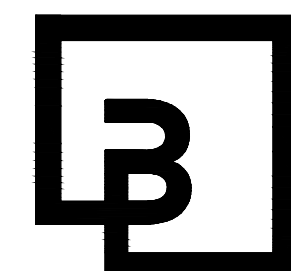
(EM) - DENOTES EMERGENCY BACKUP LIGHTING

- LED HIGH BAY FIXTURE MOUNTED 10'-6" A.F.F.
- 2'x2' LED RECESSED PANEL FIXTURE
- LED RECESSED DOWNLIGHT FIXTURE
- LED LINEAR GRAPHICS FIXTURE
- LED SURFACE MOUNTED COOLER FIXTURE
- LED EXTERIOR SURFACE MOUNTED AWNING FIXTURE
- LED EXTERIOR WALL MOUNTED FIXTURE @ 9'-6" A.F.F.
- LED EXTERIOR WALL MOUNTED FIXTURE @ 8'-0" A.F.F.
- ILLUMINATED EXIT SIGN
- ILLUMINATED EXIT SIGN W/ EMERGENCY LIGHTING
- SECURITY MONITOR
- SECURITY CAMERA
- OVERHEAD WALL RECEPTACLES
- EXHAUST FAN

CLIENT:



BP WEST COAST PRODUCTS, LLC

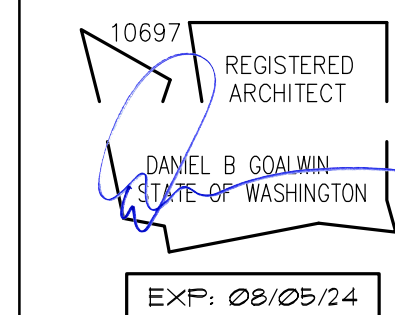


Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98571

FACILITY #7184

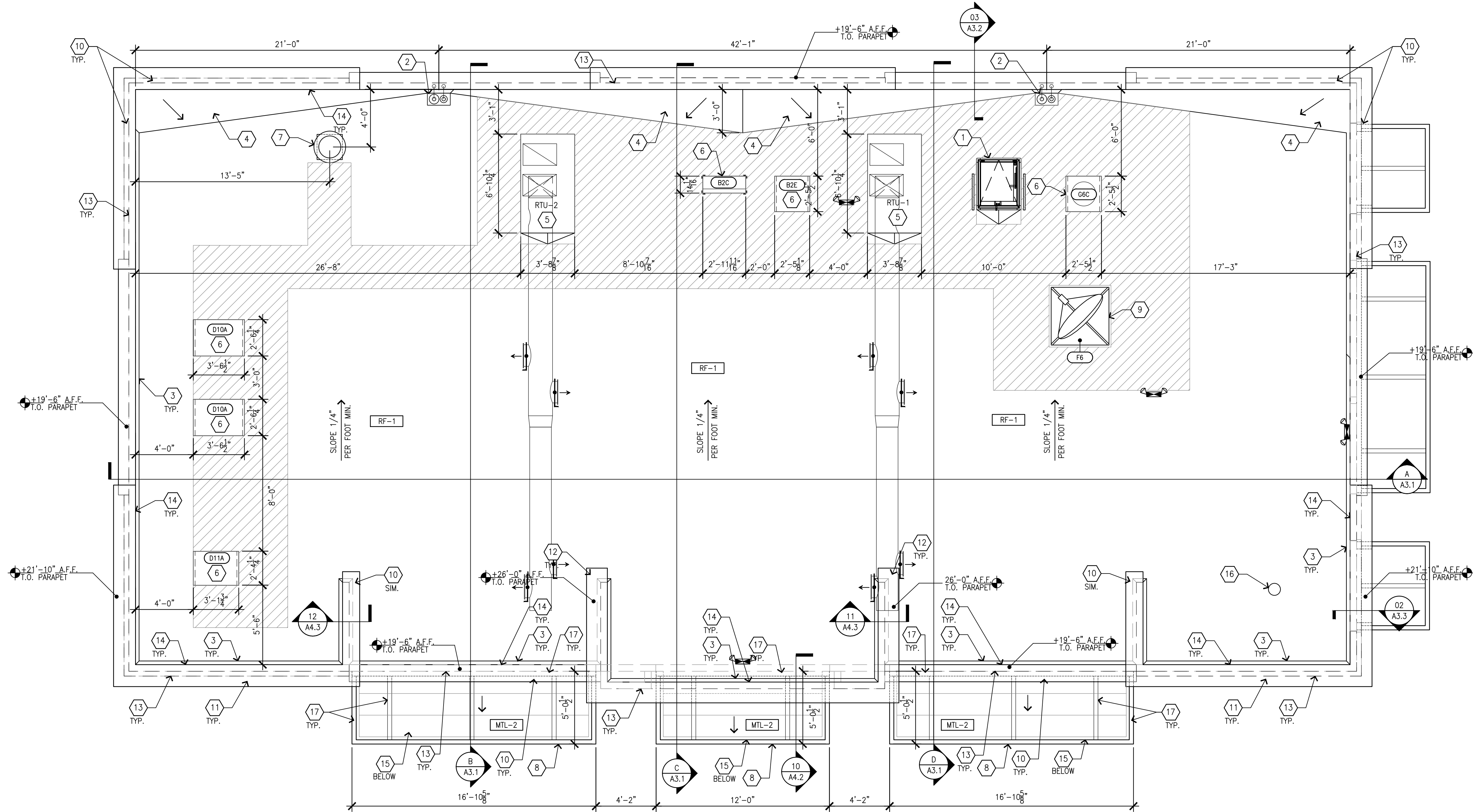
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CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

DRAWING TITLE:

REFLECTED CEILING PLAN

SHEET NO:

A1.3



01 ROOF PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES

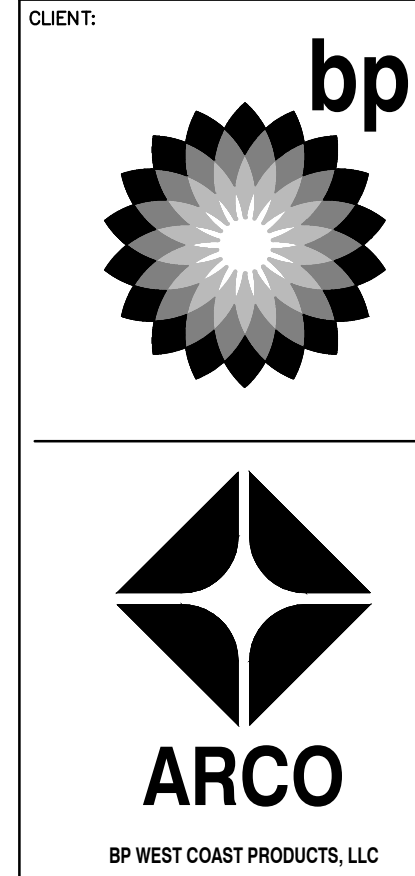
- REFER TO SPECIFICATION SHEETS A7.3 & A7.4 FOR ROOF SYSTEM, INCLUDING GUARANTEES, CURBS, FLASHING, AND ETC.
- REFER TO ROOFING MANUFACTURERS WRITTEN INSTRUCTIONS AND DETAILS FOR ROOFING SYSTEM INSTALLATION. CONTRACTOR TO PROVIDE COMPLETE ROOFING PACKAGE PER MANUFACTURERS RECOMMENDATIONS.
- ROOF ASSEMBLY SHALL COMPLY WITH U.L. I-90 AND FM CLASS "B" RATINGS INCLUDING COPING, FLASHING, PARAPET WALL, AND ROOF SYSTEM.
- DO NOT STOCKPILE EQUIPMENT OR MATERIALS ON THE ROOF STRUCTURE, UNLESS APPROVED IN WRITING BY THE ARCHITECT, STRUCTURAL ENGINEER, AND THE TRUSS MANUFACTURER.
- FOR EQUIPMENT COMPRESSOR & CONDENSER REFER TO EQUIPMENT PLAN ON SHEET Q1.1 AND EQUIPMENT SCHEDULE ON SHEET Q2.1.
- GENERAL CONTRACTOR IS TO PROVIDE TEMPORARY CONSTRUCTION PERIMETER GUARDRAIL TO COMPLY WITH CODE OF FEDERAL REGULATIONS 29 CFT 1926, SUBPART M (OSCA), GUARDRAIL TO BE 42" HEIGHT AND BE ABLE TO WITHSTAND 200 POUNDS AT TOP EDGE.
- REFER TO MECHANICAL PLANS FOR VENT PIPE PENETRATION AND CURB DETAILS. ALL ROOF PENETRATIONS SHALL BE THROUGH THE CURBS, UNLESS NOTED OTHERWISE.
- PARAPET ADJACENT TO MECHANICAL EQUIPMENT / ROOF ACCESS TO BE MINIMUM 42" HIGH WHEN WITHIN 10 FEET OF ROOF EDGE.

KEYED NOTES

- 36"x30" ROOF ACCESS HATCH, BILCO, S-20, WITH BIL-GUARD 2.0 MODEL RL2-S PER DETAIL 07/A4.1
- ROOF DRAIN AND OVERFLOW, REFER TO PLUMBING PLANS
- CANT STRIP PER DETAIL 08/A4.1
- TAPERED INSULATION CRICKET
- ROOFTOP UNIT, REFER TO MECHANICAL PLANS.
- CONDENSER, REFER TO EQUIPMENT AND ELECTRICAL PLAN
- EXHAUST FAN, REFER TO MECHANICAL PLANS
- STEEL AWNING BELOW, REFER TO SHEET A1.3 FOR DOWNSPOUT LOCATION
- SATELLITE ON BALLASTED CURB
- SHOP FORMED PRE-FINISHED METAL COPING, REFER TO DETAIL 01/A4.1
- SHOP FORMED PRE-FINISHED METAL COPING, REFER TO DETAIL 01A/A4.1
- SHOP FORMED PRE-FINISHED METAL COPING, REFER TO DETAIL 01/A4.3
- FACE OF EXTERIOR WALL BELOW
- FACE OF PARAPET WALL
- STEEL AWNING GUTTER, REFER TO SHEET A1.3 FOR DOWNSPOUT LOCATION AND DETAIL 09/A4.2
- ROOF JACK, REFER TO PLUMBING AND MECHANICAL PLANS
- "L" SHAPE STEEL ANGLE FRAME, REFER TO STRUCTURAL PLANS

ROOFING

- RF-1 TPO ROOFING MEMBRANE WITH PROTECTION BOARD AND R-40 RIGID INSULATION. REFER TO SPECIFICATIONS
- MTL-2 PRE-FINISHED ROLLED ROOFING PANELS, REFER TO A7.3 SPECIFICATION SHEET
- EQUIPMENT MAINTENANCE PATH



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10697 REGISTERED ARCHITECT
DANIEL B. COALMIN
STATE OF WASHINGTON
EXP: 08/05/24

DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98071

FACILITY #7184

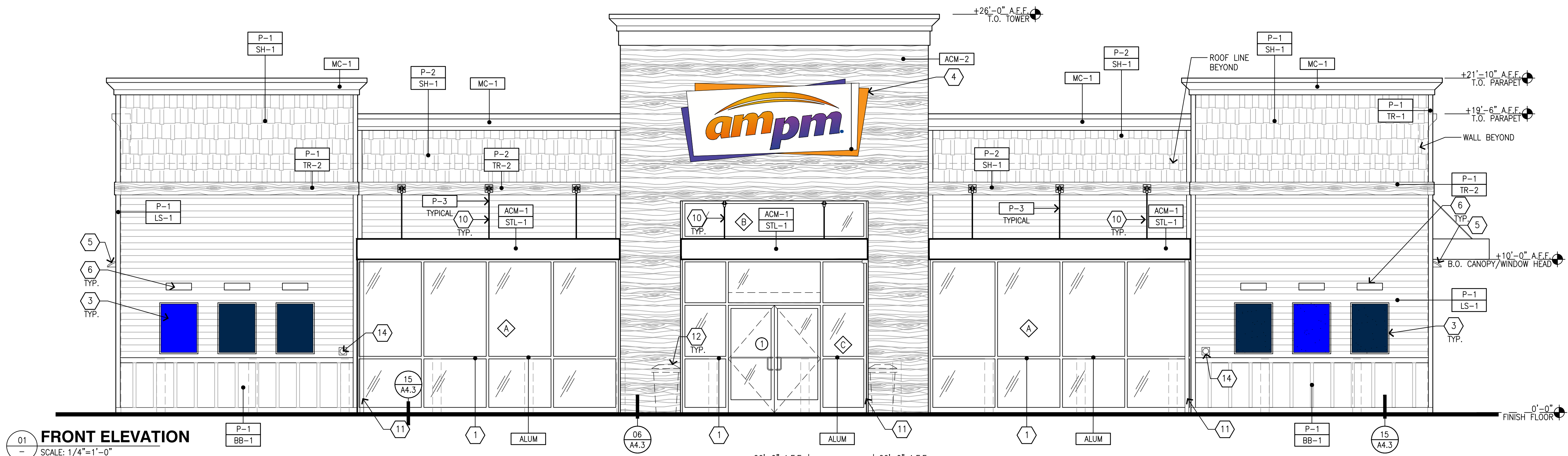
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CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

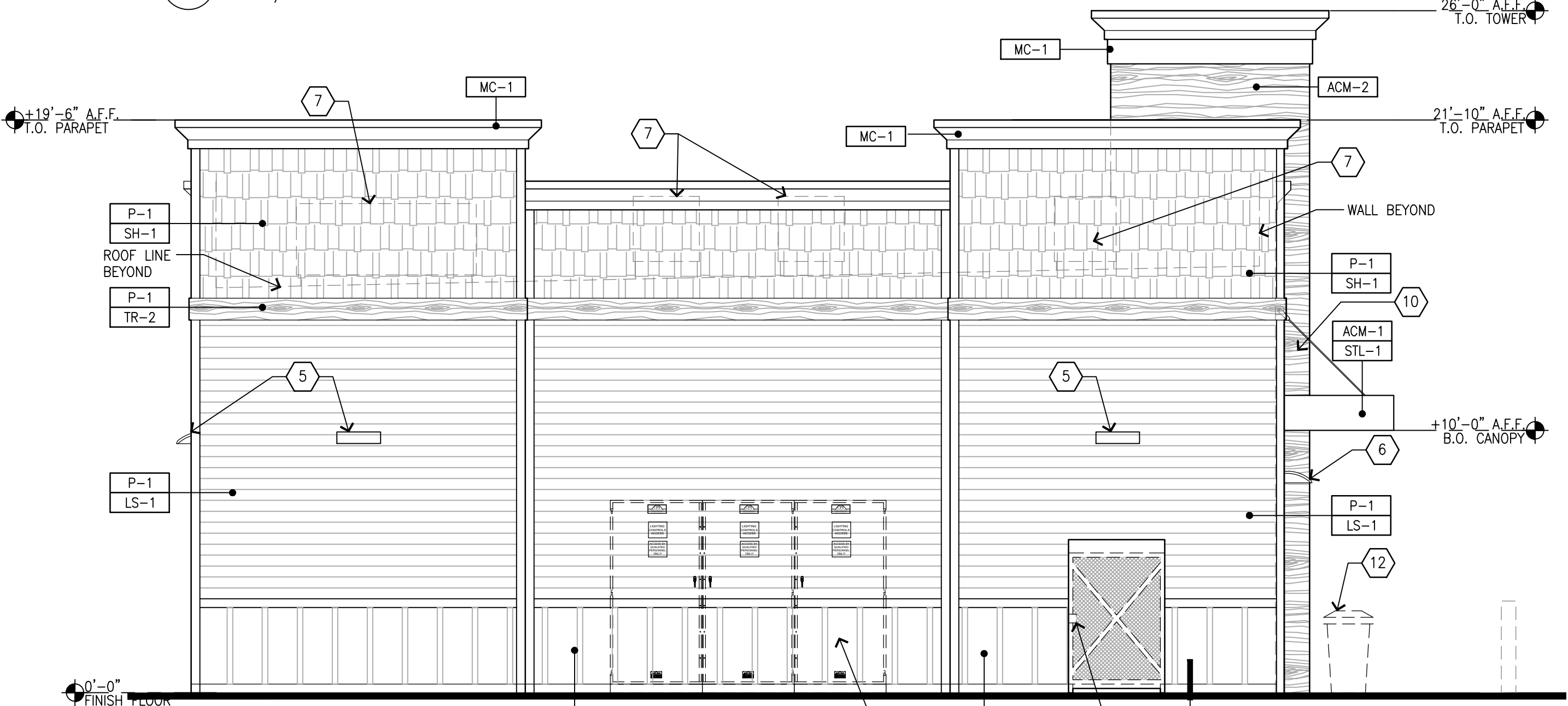
ROOF PLAN

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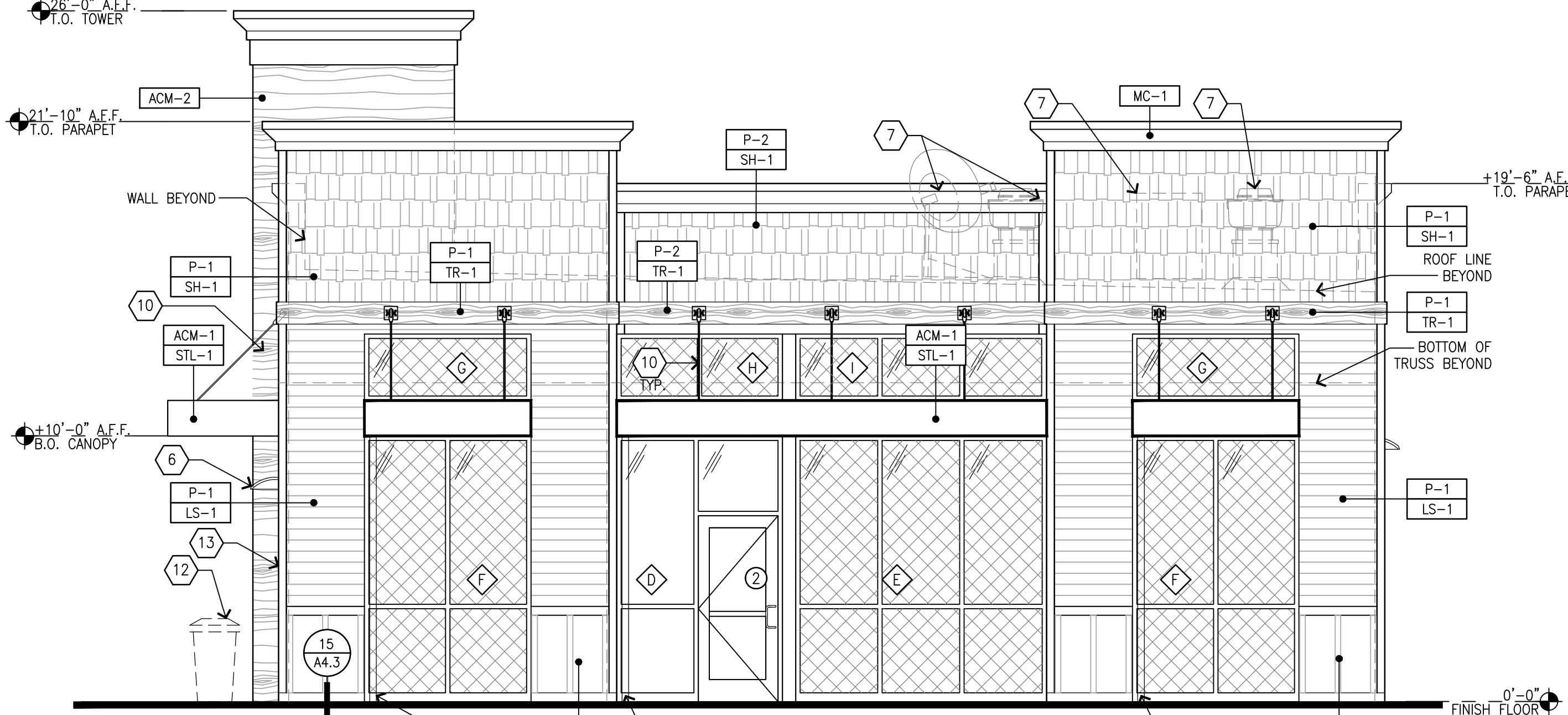
A1.4



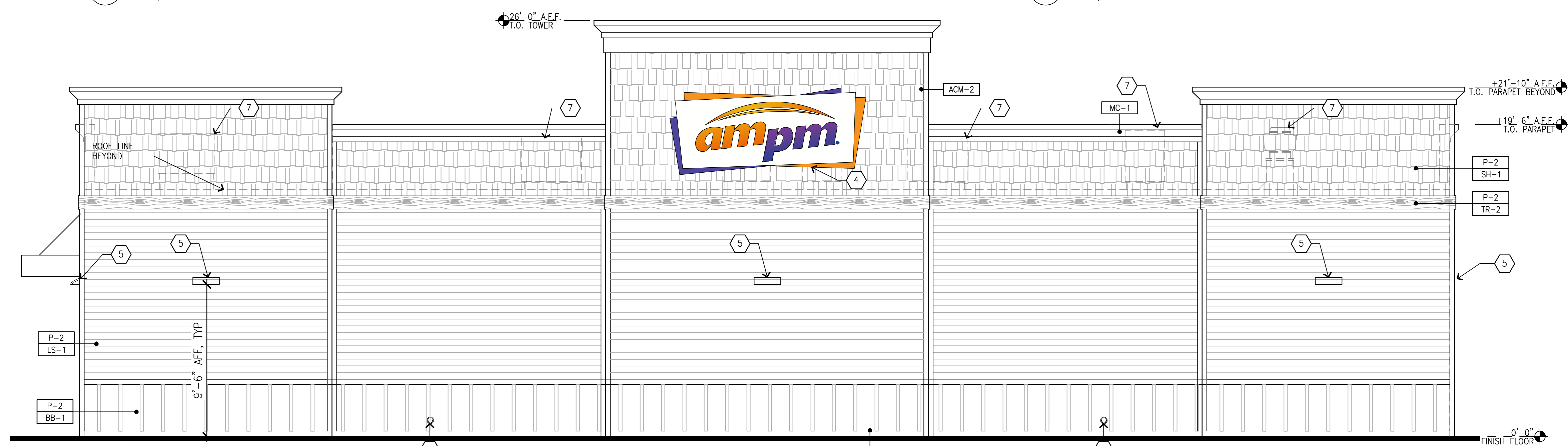
01 FRONT ELEVATION
SCALE: 1/4"=1'-0"



02 LEFT ELEVATION
SCALE: 1/4"=1'-0"



03 RIGHT ELEVATION
SCALE: 1/4"=1'-0"



04 REAR ELEVATION
SCALE: 1/4"=1'-0"

GENERAL NOTES

A. REVEAL LOCATIONS IN FINISH SYSTEM SHOWN ARE TO ALIGN AS CLOSELY AS POSSIBLE TO ELEVATIONS.

KEYED NOTES

- 1 ALUMINUM ENTRANCE AND STOREFRONT SYSTEM, REFER TO SHEET A5.1 FOR SPECIFICATION
- 2 OVERFLOW DRAIN
- 3 WALL POSTER, SIGNAGE UNDER SEPARATE PERMIT
- 4 LARGE INTERNALLY ILLUMINATED SURFACE MOUNTED WALL SIGN SIGNAGE UNDER SEPARATE PERMIT
- 5 WALL MOUNTED LED FIXTURE
- 6 WALL MOUNTED SIGN LIGHTING
- 7 ROOFTOP EQUIPMENT BEYOND
- 8 MAIN SWITCHGEAR
- 9 CO2 FILL/VENT BOX, VERIFY LOCATION PRIOR TO INSTALLATION
- 10 AWNING ROD AND CLEVIS, REFER TO SHEET A1.4 AND STRUCTURAL PLANS FOR DETAILS
- 11 CANOPY DOWNSPOUT PAINTED TO MATCH STOREFRONT, REFER TO CIVIL PLANS FOR CONTINUATION
- 12 NATURAL BROWN STONE AGGREGATE TRASH RECEPTACLE, REFER TO SHEET Q2.1 FOR SPECIFICATION
- 13 PORTABLE PROPANE TANK DISPLAY, REFER TO SHEET Q2.1 FOR SPECIFICATION
- 14 EMERGENCY SHUT OFF SWITCH, VERIFY LOCATION PRIOR TO INSTALLATION. REFER TO ELECTRICAL SHEETS FOR SPECIFICATIONS

COLOR LEGEND

- P-1 BENJAMIN MOORE, 1077 "GREAT PLAINS GOLD", SATIN FINISH
- P-2 BENJAMIN MOORE, 1030 "BRANDY CREAM", SATIN FINISH
- P-3 BENJAMIN MOORE, 2121-30 "PEWTER", HIGH GLOSS FINISH

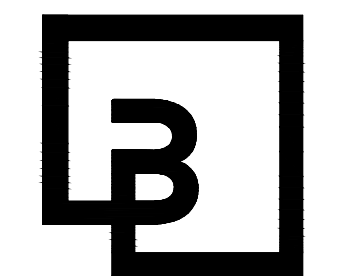
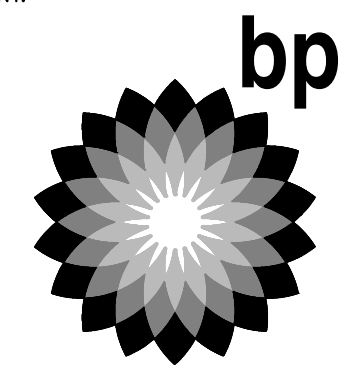
MATERIAL LEGEND

- ACM-1 ALUMINUM COMPOSITE MATERIAL, PANTONE PMS 166c, "ORANGE"
- ACM-2 ALUMINUM COMPOSITE MATERIAL, ALUCOBOND, "RUSTIC WALNUT"

MATERIAL LEGEND

- ALUM CLEAR ANODIZED ALUMINUM
- STL-1 STEEL AWNING
- BB-1 BATTEN AND BOARD WAINSCOT - JAMES HARDIE CEMENT FIBER BOARD
HARDIE PANEL VERTICAL SIDING, SMOOTH, BOARD PORTION
HARDIE TRIM, SMOOTH, 1"x3"x12". BATTEN PORTION, SPACED 16" O.C., PROVIDE EVEN SPACES AT EACH END
- LS-1 LAP SIDING - JAMES HARDIE FIBER BOARD
HARDIE PLANK LAP SIDING, SMOOTH 7.25" WIDTH, 6" EXPOSURE
- TR-1 TRIM OUTSIDE CORNERS & WAINSCOT CAP-JAMES HARDIE CEMENT FIBER BOARD HARDIE TRIM, SMOOTH, 5/4"x4"x12"
- TR-2 BELLY BAND @ 14-3.5' TO BOTTOM - JAMES HARDIE CEMENT FIBER BOARD HARDIE TRIM, ROUGH TEXTURED, 5/4"x10"x12"
- SH-1 SHINGLE SIDING -JAMES HARDIE CEMENT FIBER BOARD HARDIESHINGLE SIDING, STAGGERED EDGE PANEL, ROUGH TEXTURED
- MC-1 PRE-FINISHED , PRE-FORMED FULLY CLEATED METAL PARAPET CAP TO MATCH FINISH P-3

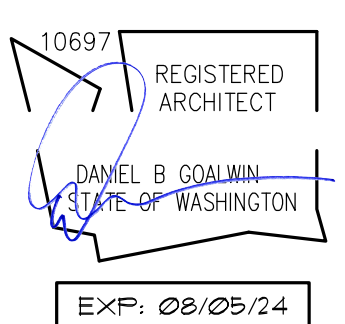
CLIENT:



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18215 72nd Avenue South
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 8 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY:	ALLIANCE ZADN:
CHECKED BY:	BP REP:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

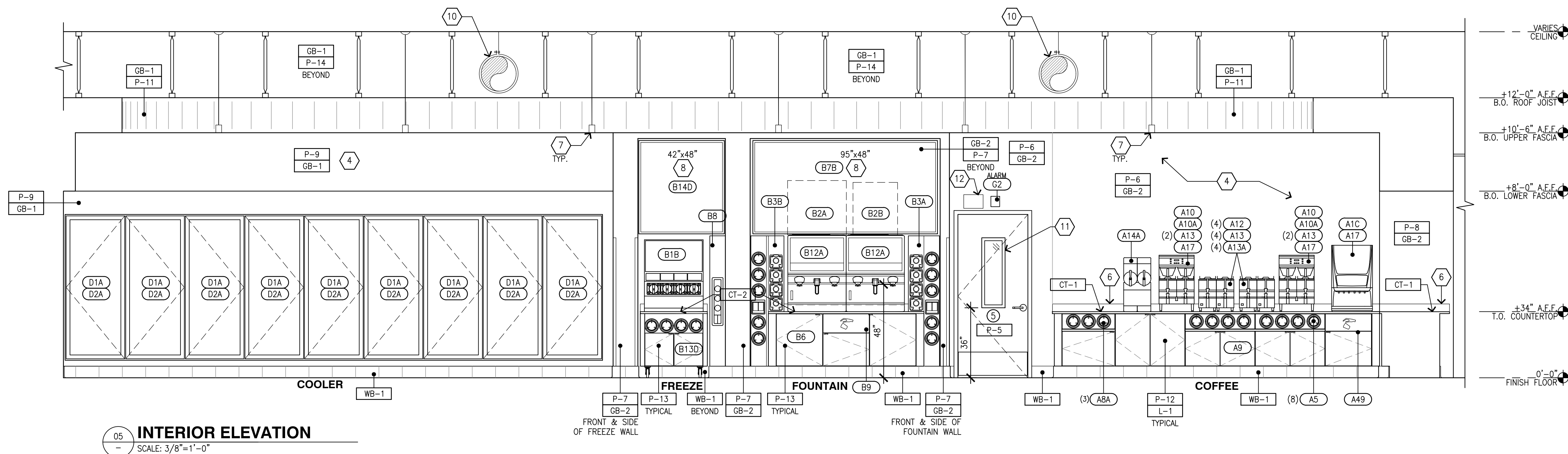
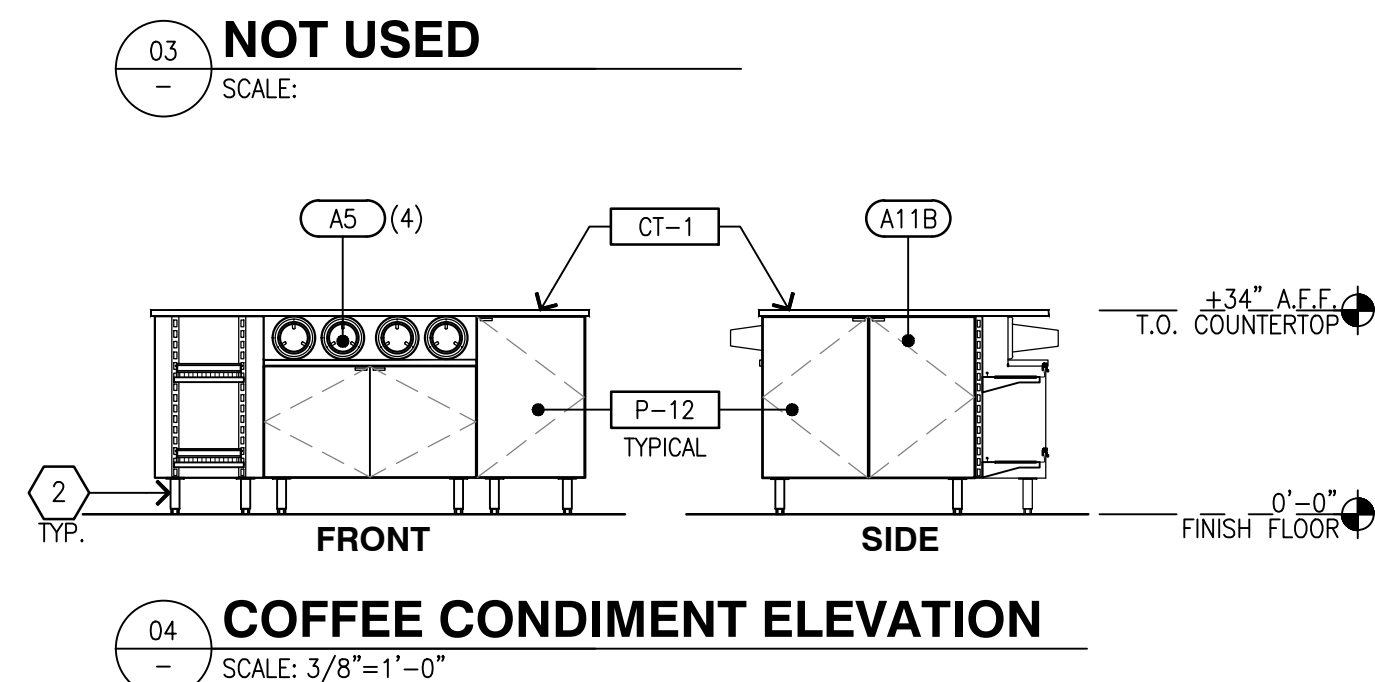
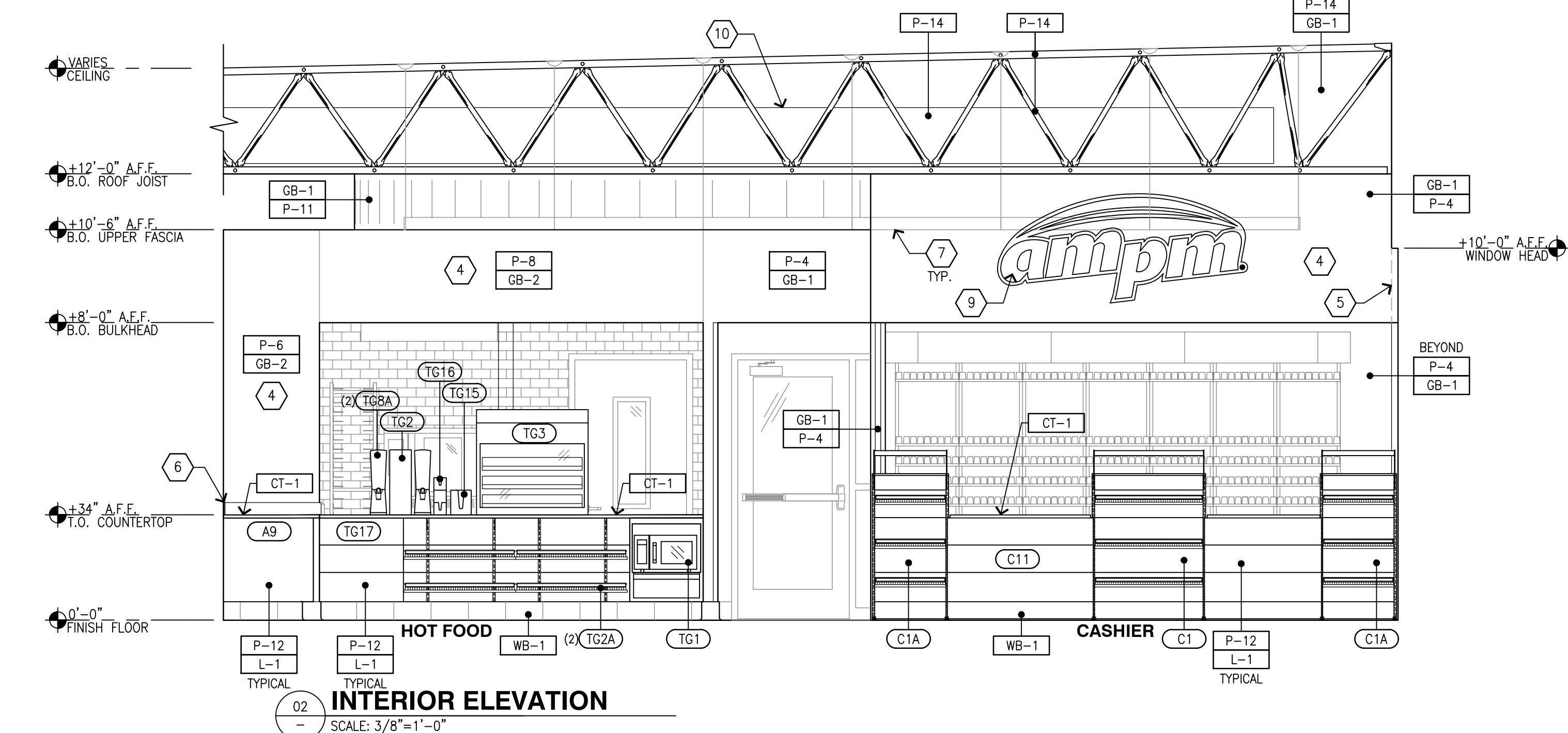
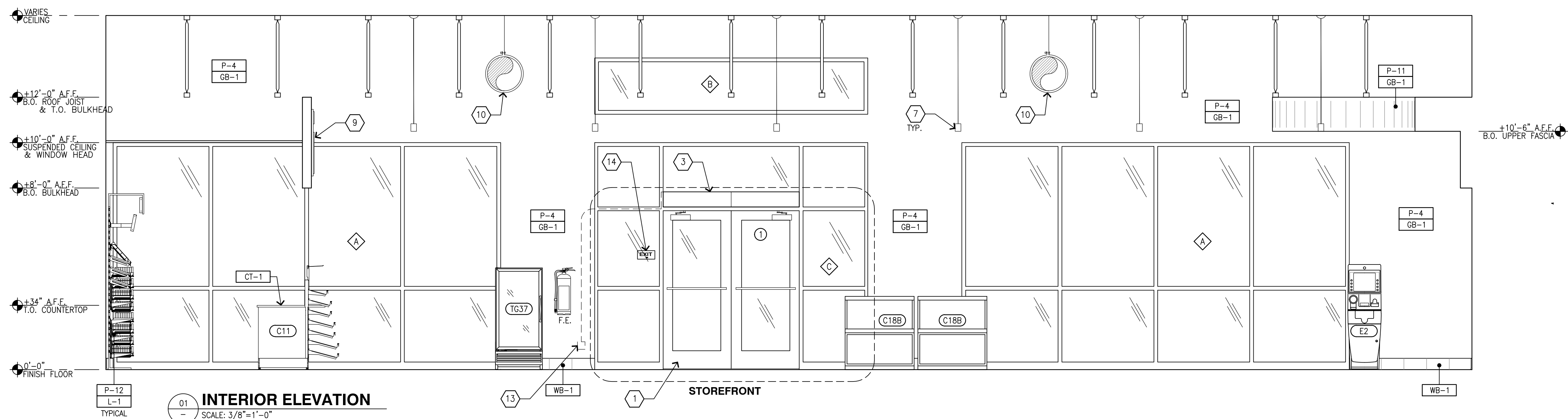
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EXTERIOR ELEVATIONS

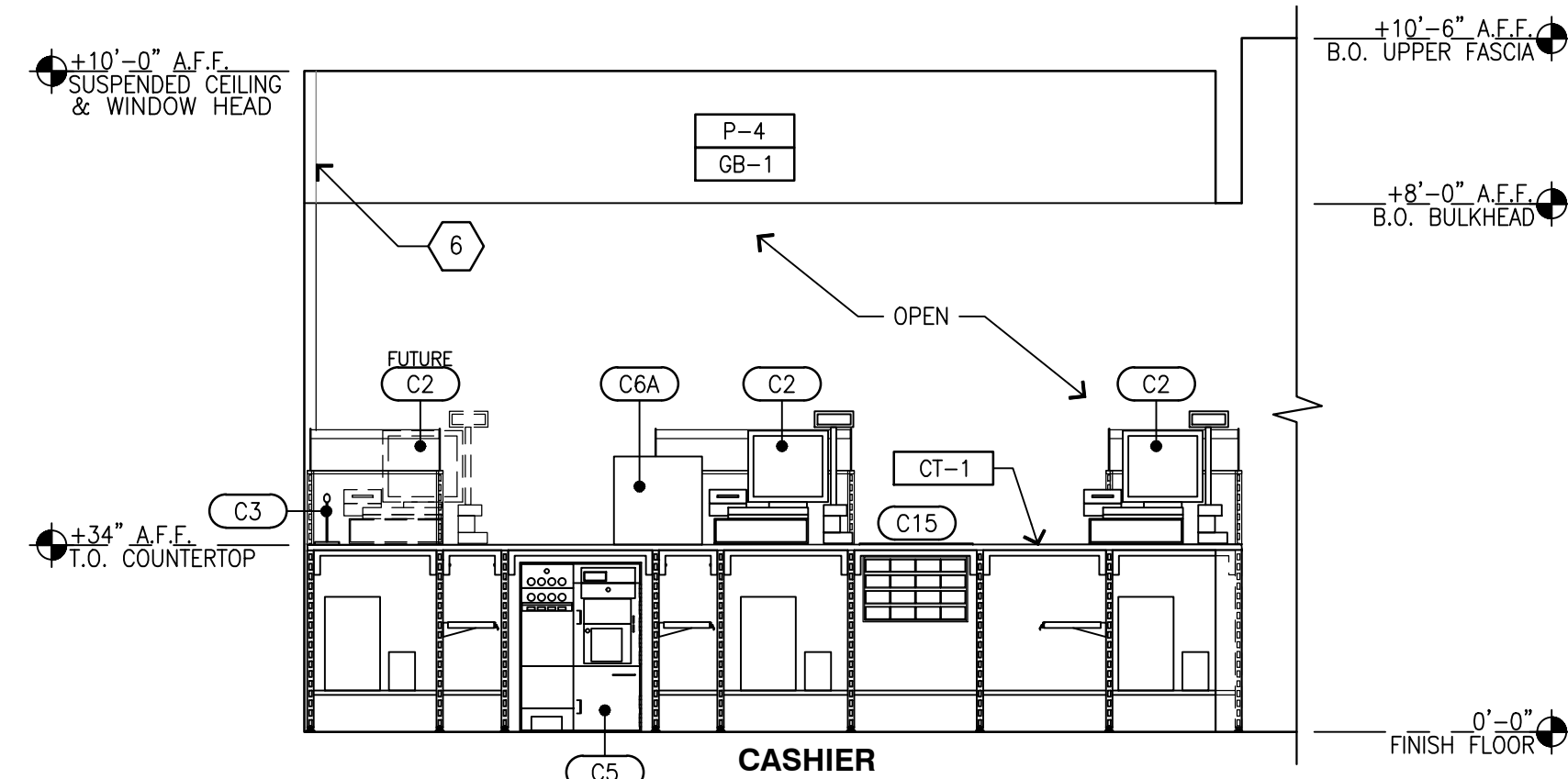
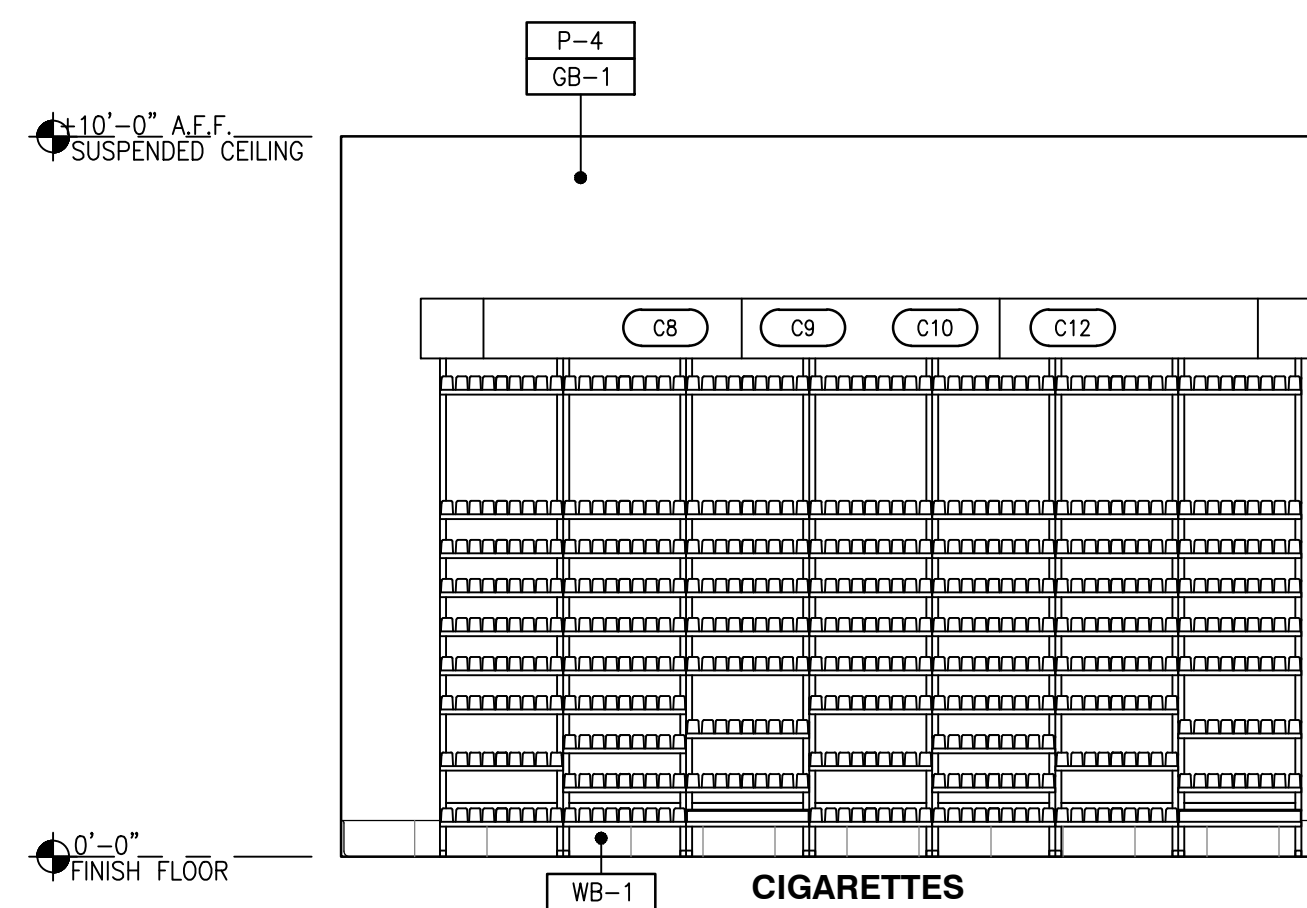
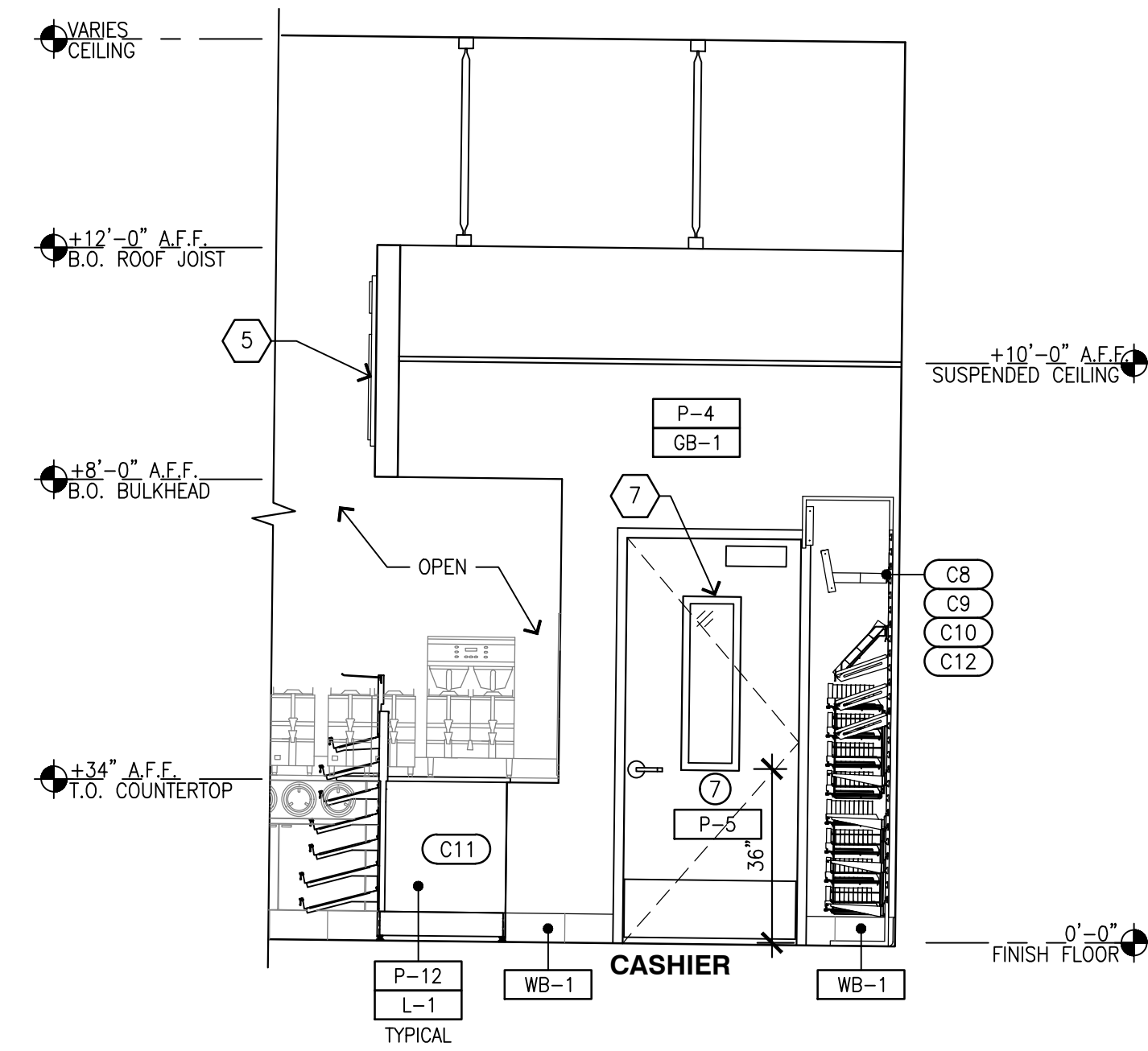
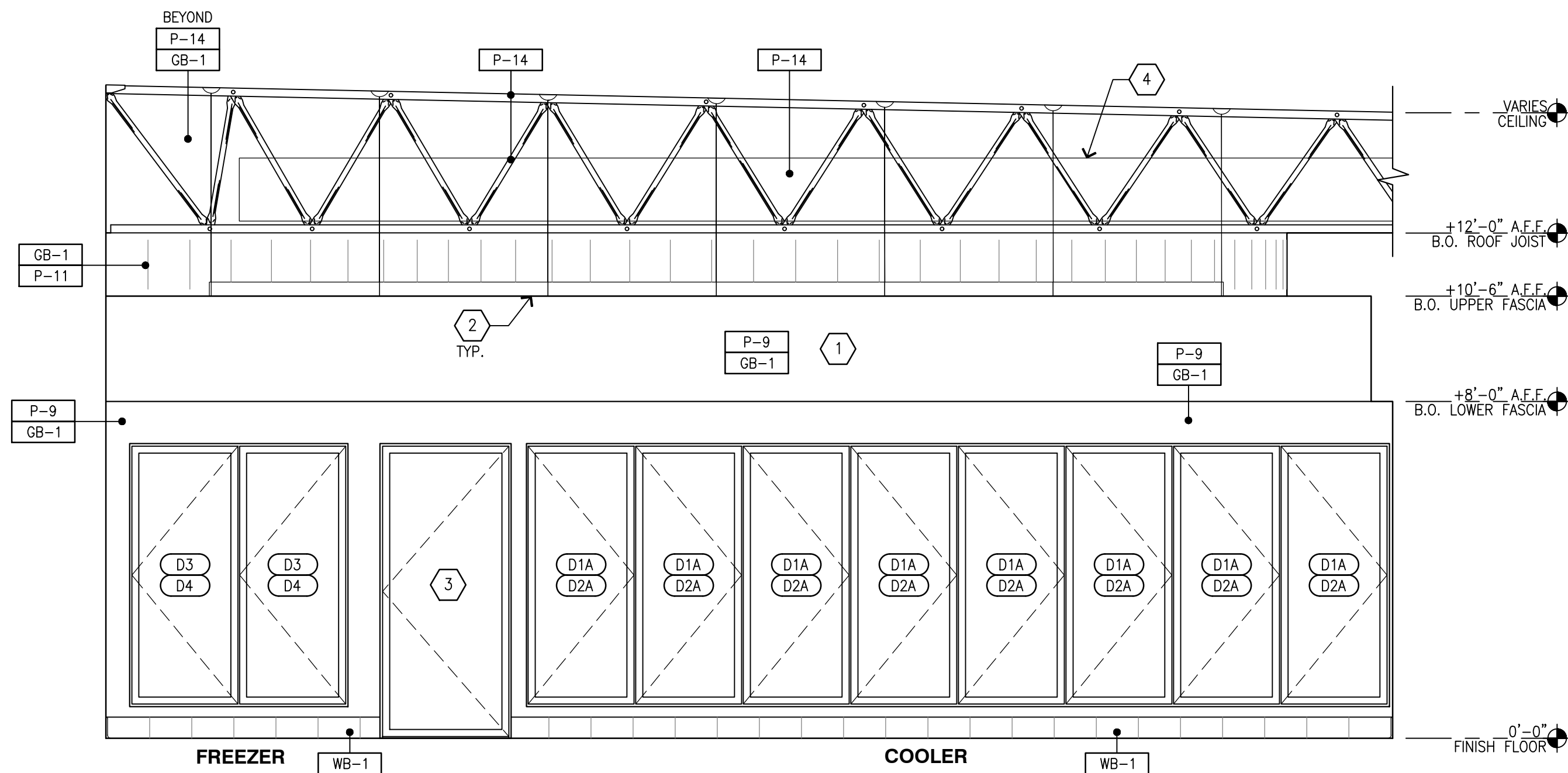
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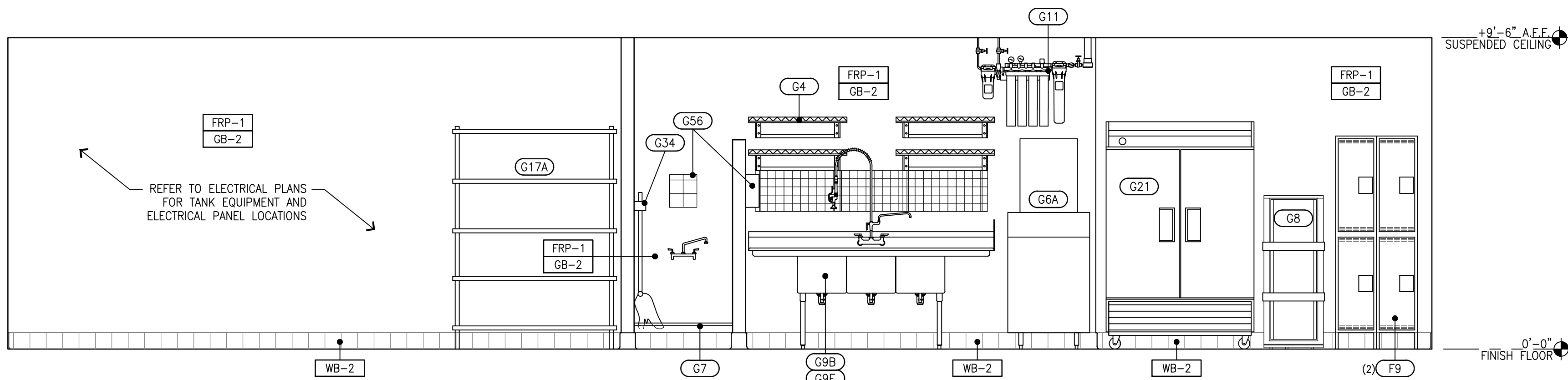
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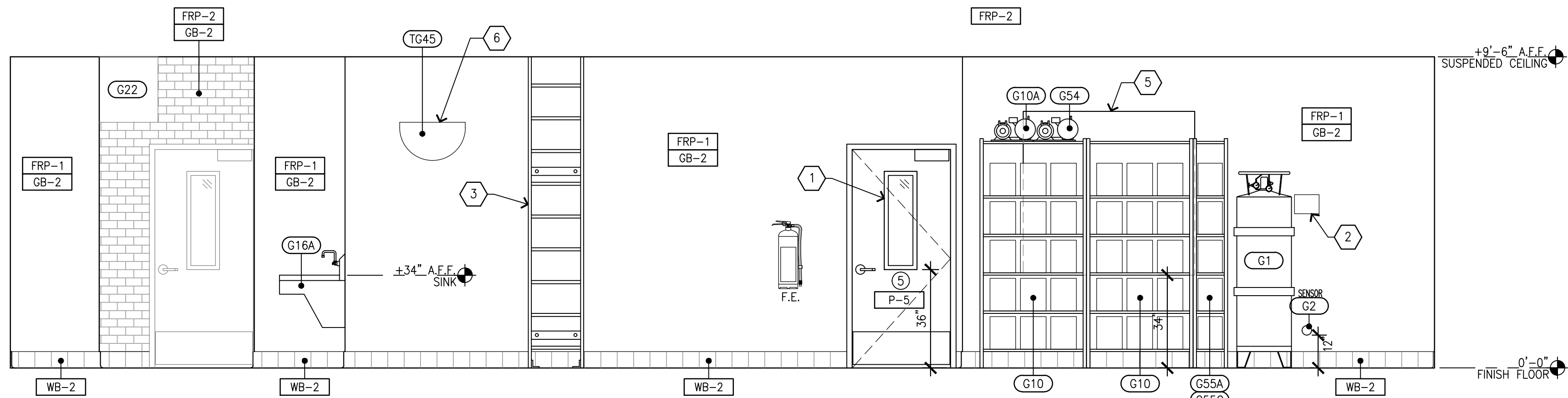
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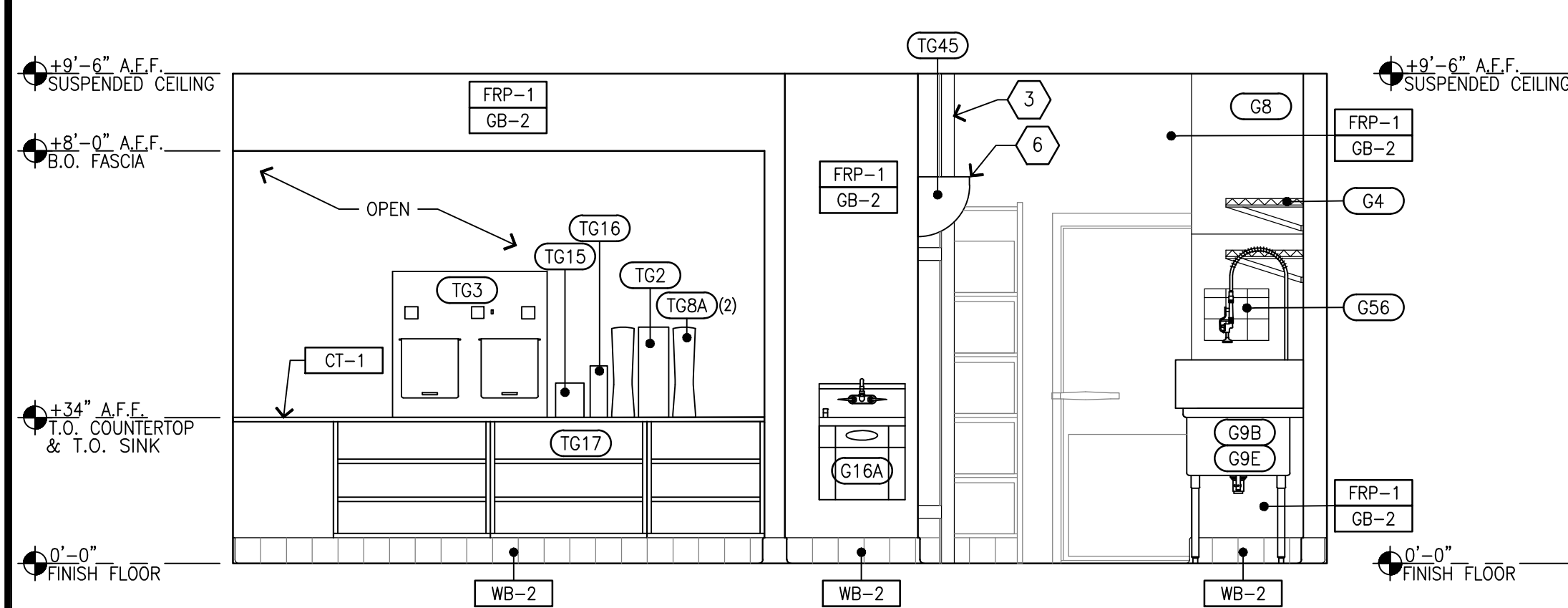
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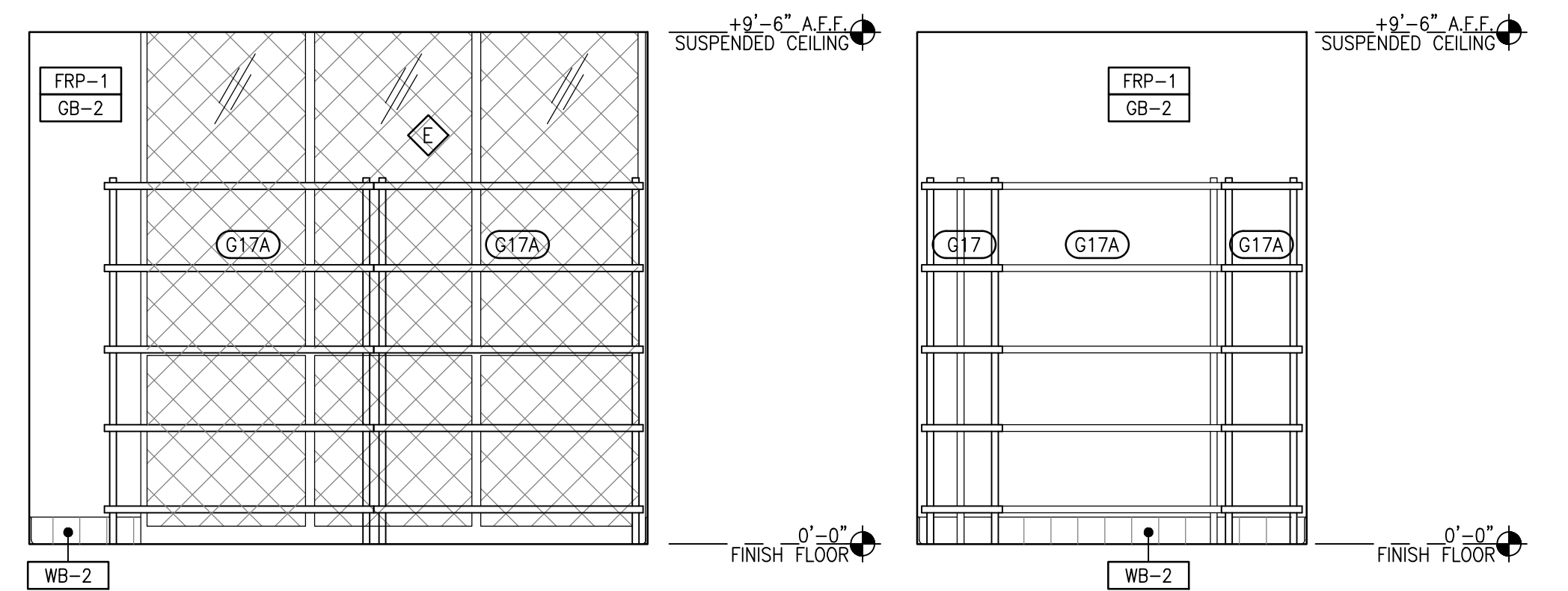
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INTERIOR ELEVATION
SCALE: 3/8"=1'-0"



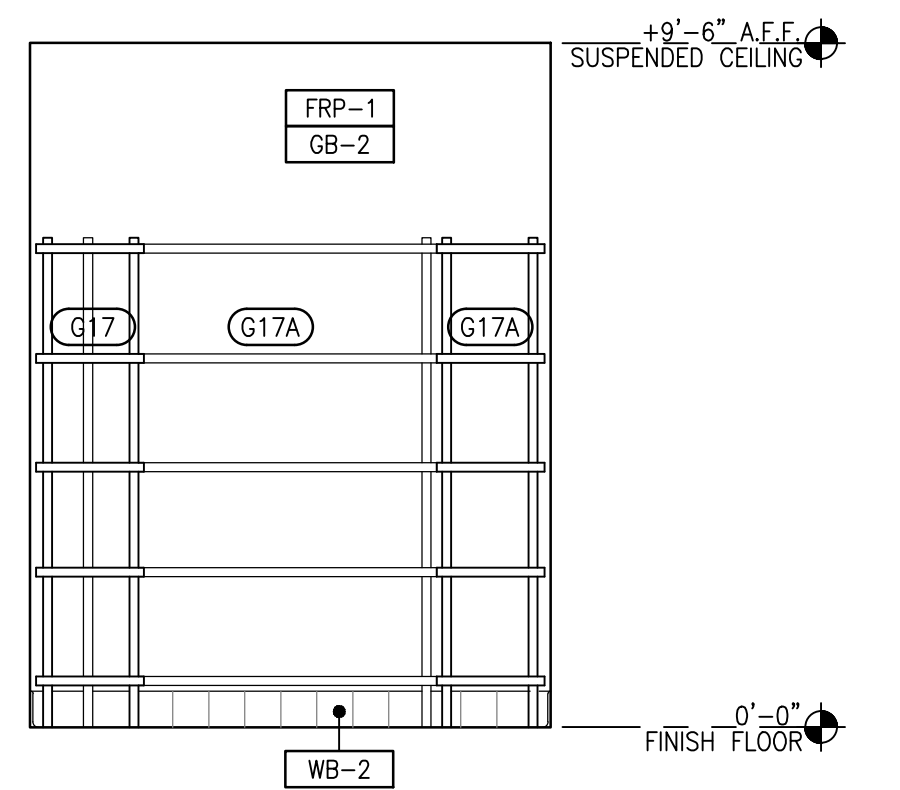
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INTERIOR ELEVATION
SCALE: 3/8"=1'-0"



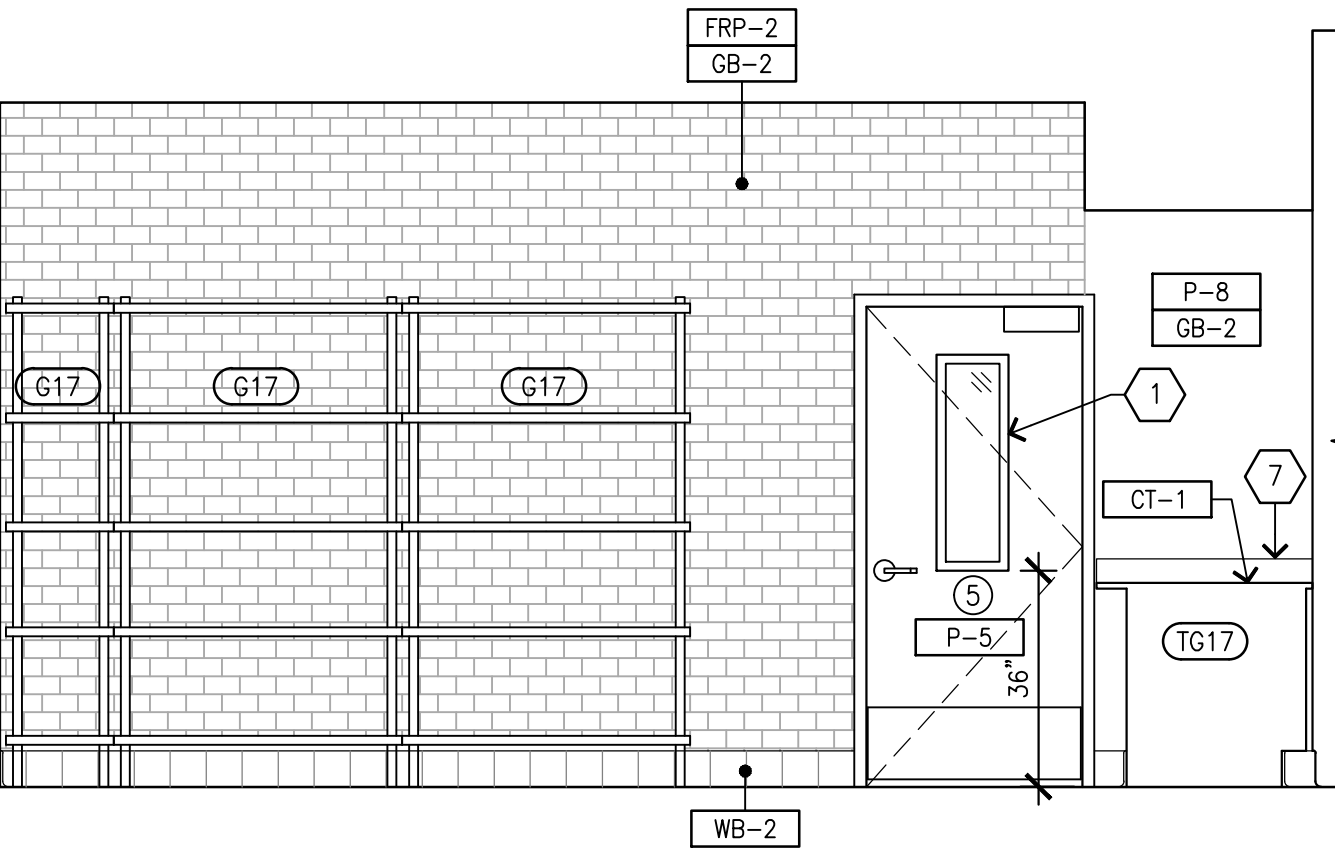
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INTERIOR ELEVATION
SCALE: 3/8"=1'-0"



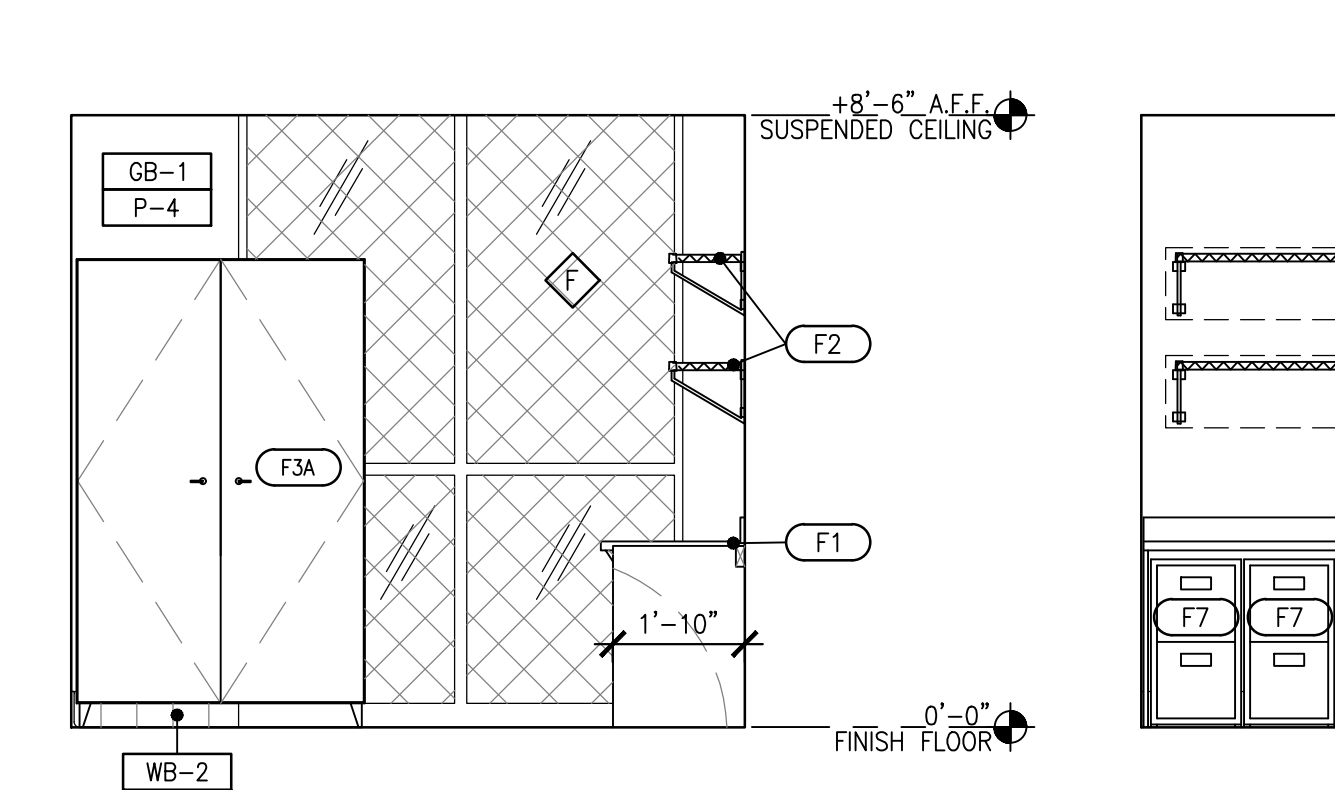
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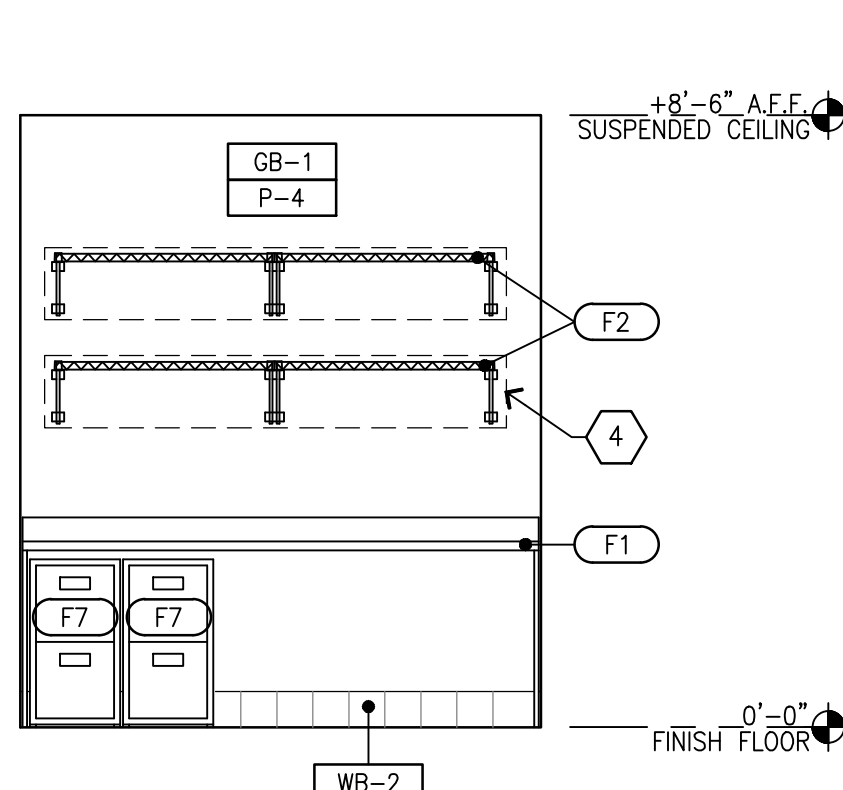
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INTERIOR ELEVATION
SCALE: 3/8"=1'-0"



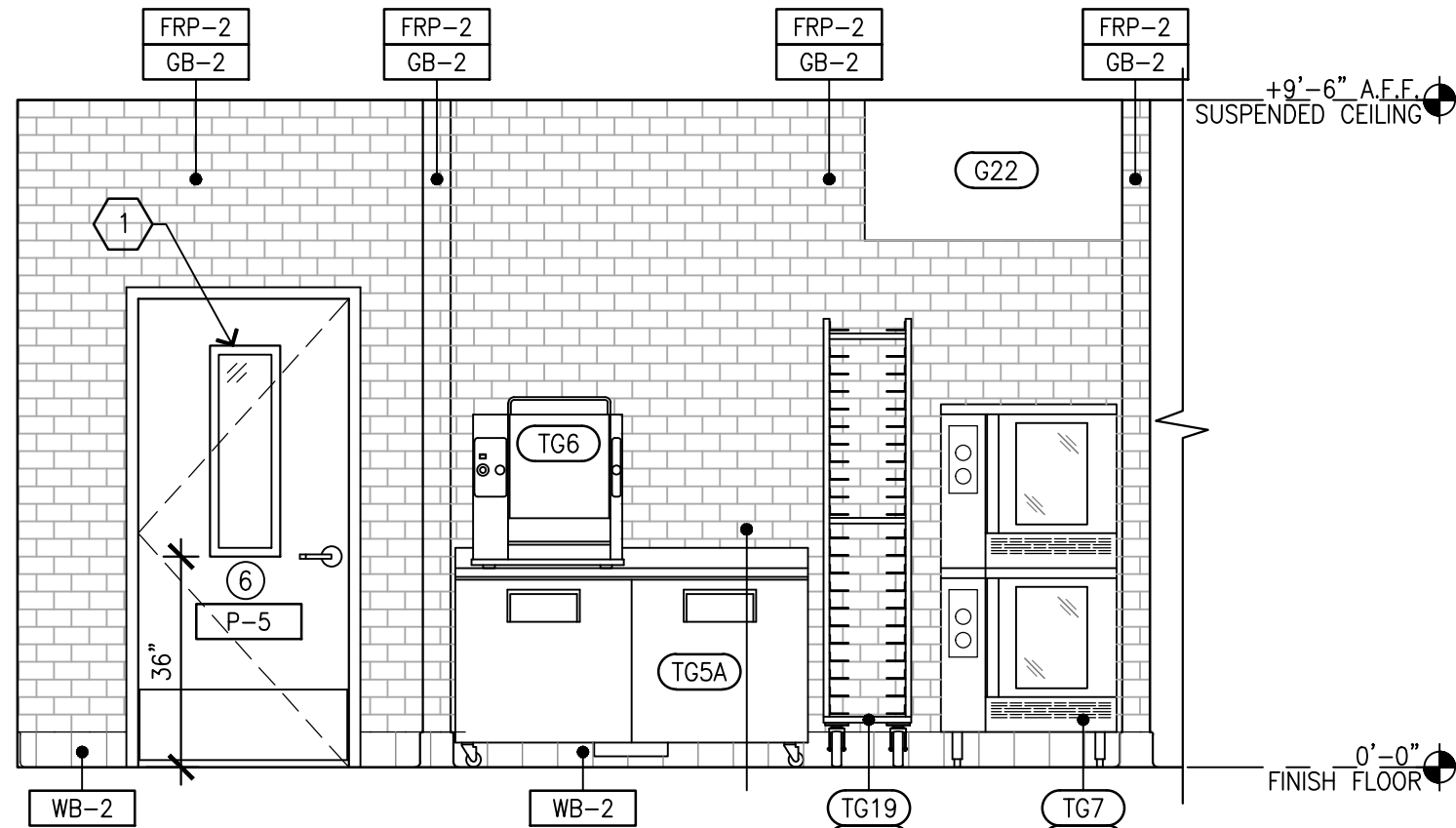
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SCALE: 3/8"=1'-0"



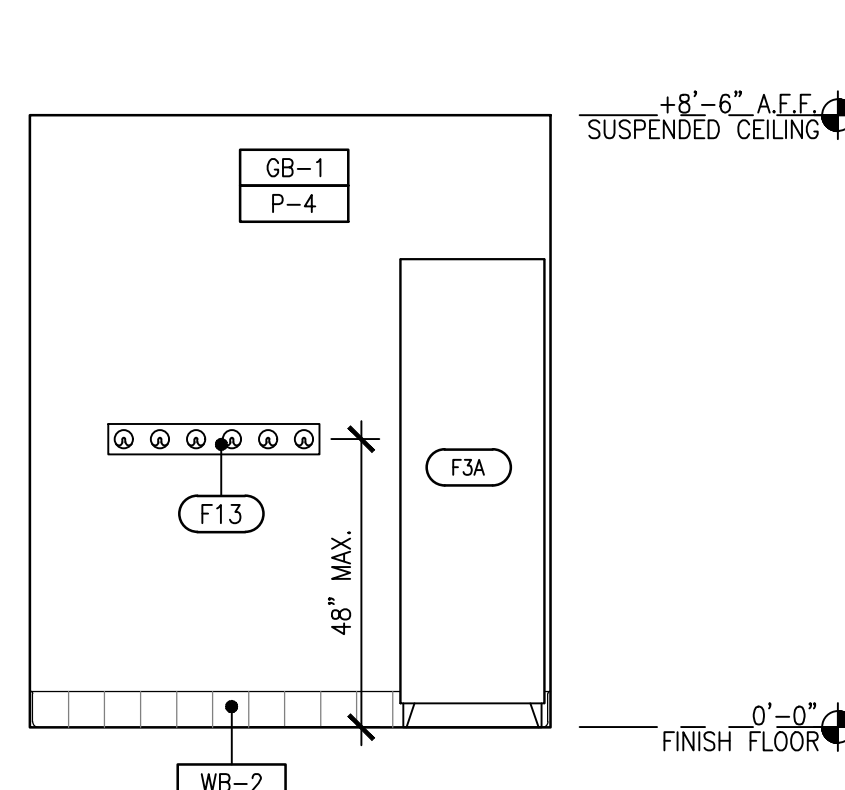
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OFFICE ELEVATION
SCALE: 3/8"=1'-0"



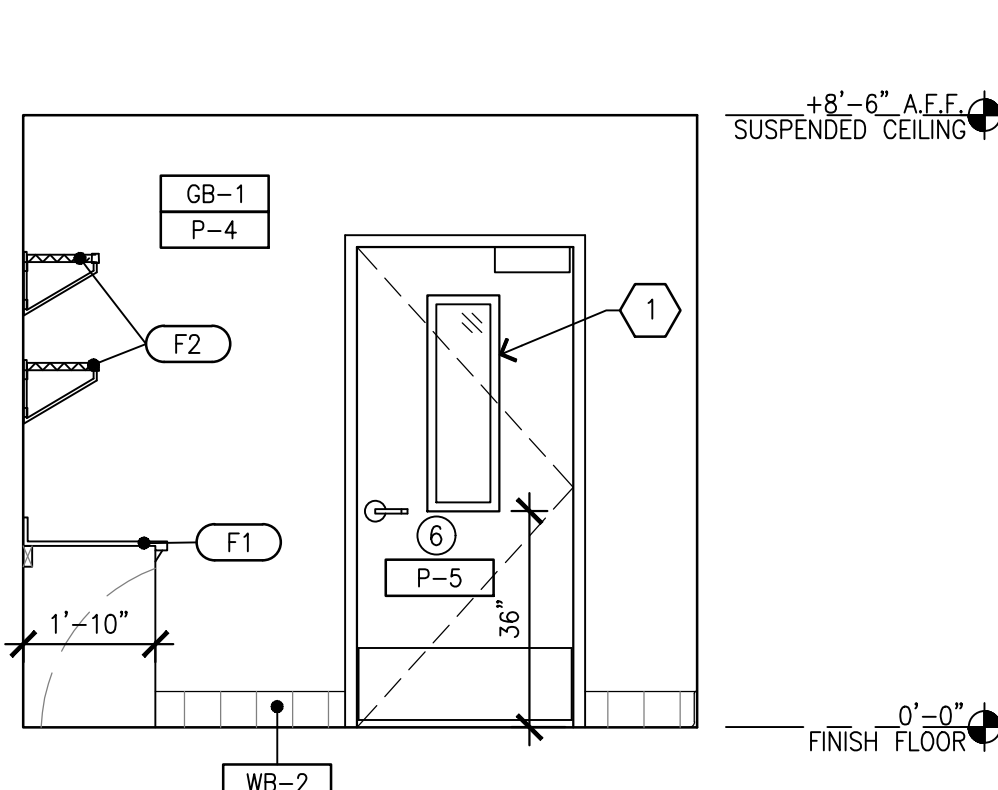
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OFFICE ELEVATION
SCALE: 3/8"=1'-0"



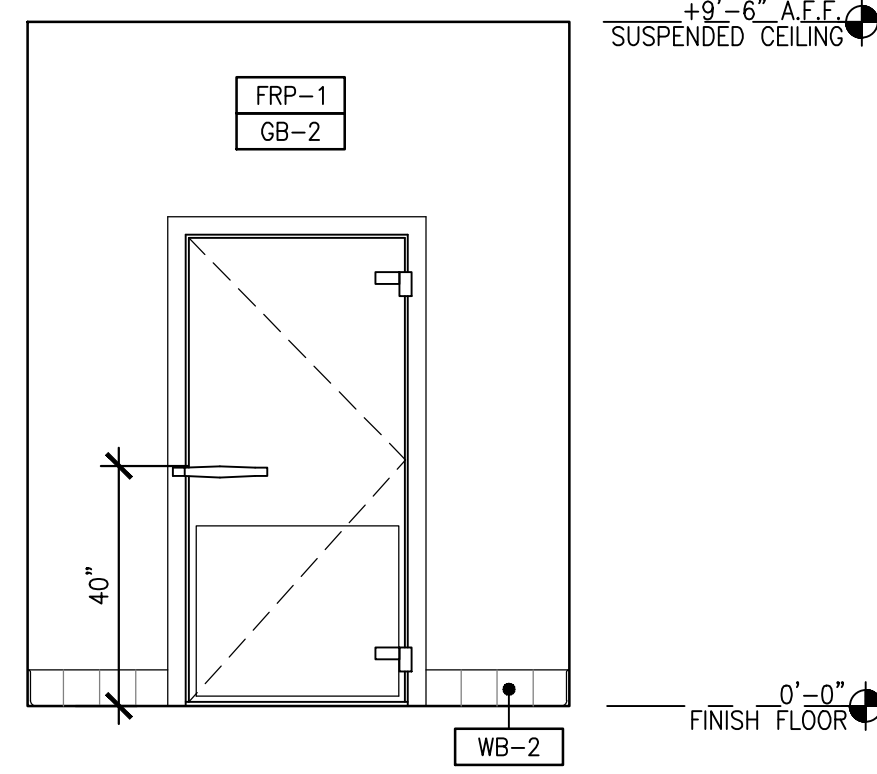
06
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INTERIOR ELEVATION
SCALE: 3/8"=1'-0"



11
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OFFICE ELEVATION
SCALE: 3/8"=1'-0"



12
—
OFFICE ELEVATION
SCALE: 3/8"=1'-0"



02
—
INTERIOR ELEVATION
SCALE: 3/8"=1'-0"

GENERAL NOTES

- REFER TO SHEET 01.1 FOR EQUIPMENT PLAN.
- REFER TO SHEET 02.1 FOR EQUIPMENT SCHEDULE.
- ALL EQUIPMENT SHALL MEET LOCAL ACCESSIBILITY REQUIREMENTS.
- PROVIDE STAINLESS STEEL CORNER GUARDS AT EDGES BELOW 6'-0" AND FULL HEIGHT AT CORNERS WITH WALL TILE.
- PROVIDE PVC TRIM AT ALL FRP EDGES.
- PROVIDE 4" HIGH BACKSPLASH AT ALL COUNTERTOPS THAT TERMINATE AT WALL. BACKSPLASH TO MATCH COUNTERTOP MATERIAL.

KEY NOTES

- 12"x36" VISION PANEL.
- C02 ALERT SENSOR WARNING SIGN MOUNTED AT 60" O.C.
- ROOF LADDER, REFER TO DETAIL 07/A4.1
- G.C. TO PROVIDE BLOCKING FOR SHELVING AS REQUIRED BY MFR, DASHED LINES ON ELEVATIONS REPRESENT APPROXIMATE LOCATION OF BLOCKING.
- 64"x60" ACCESS OPENING AT WALL BEHIND FOUNTAIN @ 34" A.F.F.
- UV FLY LIGHT FURNISHED AND INSTALLED BY VENDOR. TOP EDGE 24" FROM CEILING
- 4" BACKSPLASH TO MATCH COUNTERTOP FINISH

FINISH SYMBOLS

PAINT COLOR

- | | |
|------|---|
| P-4 | BENJAMIN MOORE, 1079, "BAYSHORE BEIGE"
EGGSHELL FINISH |
| P-5 | BENJAMIN MOORE, 2121-70, "CHANTILLY LACE"
SEMI-GLOSS FINISH |
| P-6 | BENJAMIN MOORE, 2096-30, "GRANDFATHER CLOCK BROWN"
SEMI-GLOSS FINISH |
| P-7 | BENJAMIN MOORE, 2049-50, "SPECTRA BLUE"
SEMI-GLOSS FINISH |
| P-8 | BENJAMIN MOORE, 2019-30, "SUNFLOWER"
SEMI-GLOSS FINISH |
| P-11 | BENJAMIN MOORE, 2132-60, "METALLIC SILVER"
EGGSHELL FINISH |

NOTE: FOOD SERVICE AREAS AND RESTROOMS SHALL BE SEMI-GLOSS FINISH

WALL PANEL

- | | |
|-------|--|
| FRP-1 | FIBER REINFORCED PANEL - CRANE COMPOSITES,
GLASBORD, PEBBLED EMBOSSED TEXTURE, WHITE (85) |
| FRP-2 | FIBER REINFORCED PANEL - MARLITE SYMMETRIX,
BLUESKY ADVANCED FINISHING, SUBWAY TILE,
(C 100-G63 WHITE) |

COUNTERTOP

- | | |
|------|---|
| CT-1 | SOLID SURFACE - FORMICA, LUNA SAND #757
(EASED EDGE) |
|------|---|

CT-2

STAINLESS STEEL

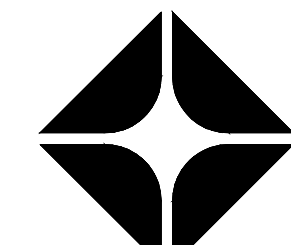
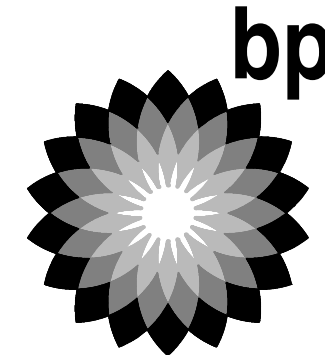
SUBSTRATE

- | | |
|-------|---|
| GB-1 | TYPE: 5/8" GYPSUM BOARD |
| GB-2 | TYPE: 5/8" WATER-RESISTANT GYPSUM BOARD |
| PLY-1 | TYPE: 5/8" PLYWOOD |
| PLY-2 | TYPE: 5/8" MDO PLYWOOD |

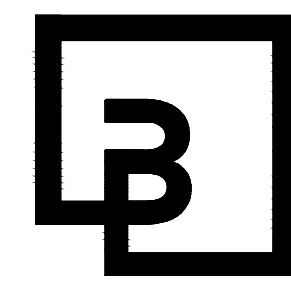
WALL BASE

- | | |
|------|---|
| WB-1 | CERAMIC SANITARY COVE BASE
MFR: DAL TILE
PRODUCT: PORTFOLIO
COLOR: PF08 "CHOCOLATE"
SHAPE: P36C9T (CORNER- PC36C9T)
SIZE: 6"x12"
GROUT: 1/8" #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS |
| WB-2 | QUARRY COVE BASE
MFR: DAL TILE
PRODUCT: QUARRY
COLOR: Q040
SHAPE: Q-3565
SIZE: 5"x6"
GROUT: 3/8" #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS |

CLIENT:



ARCO
BP WEST COAST PRODUCTS, LLC

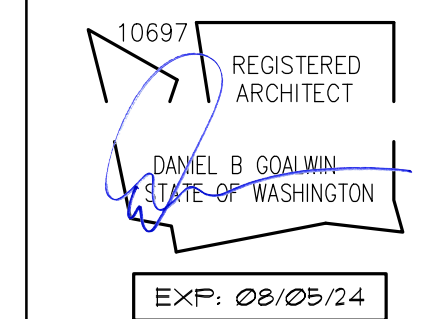


Barghausen
Consulting Engineers, Inc.

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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

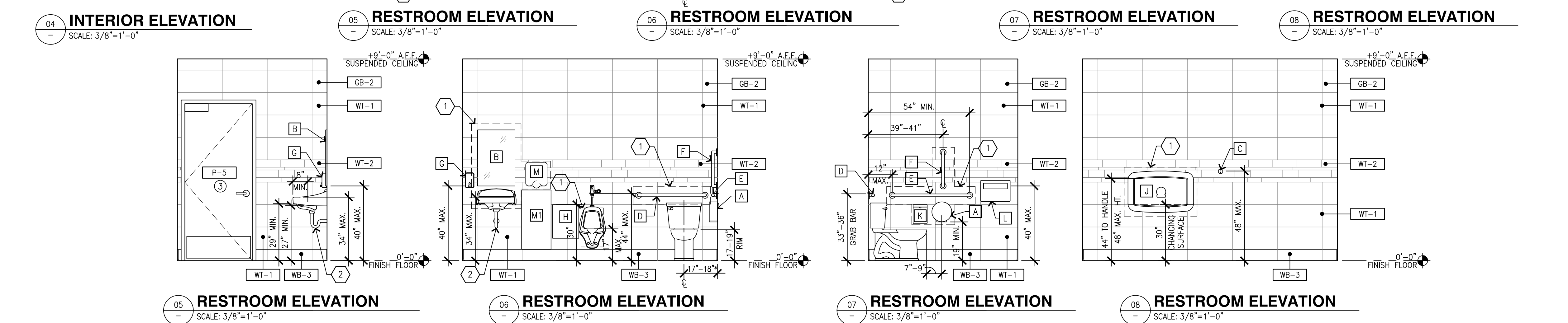
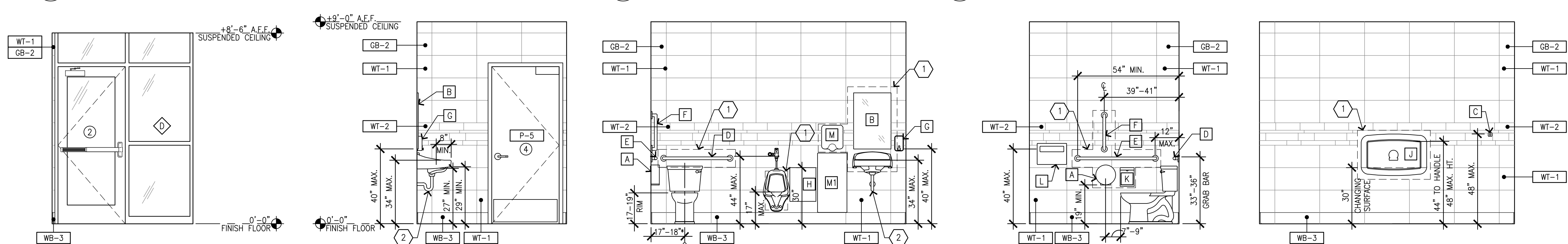
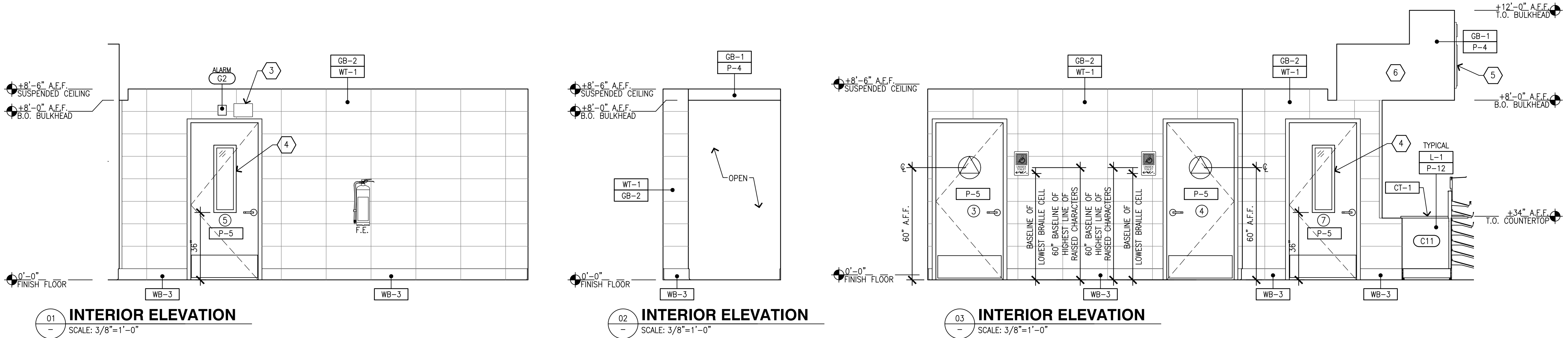
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VERSION:	PROJECT NO:
	21730

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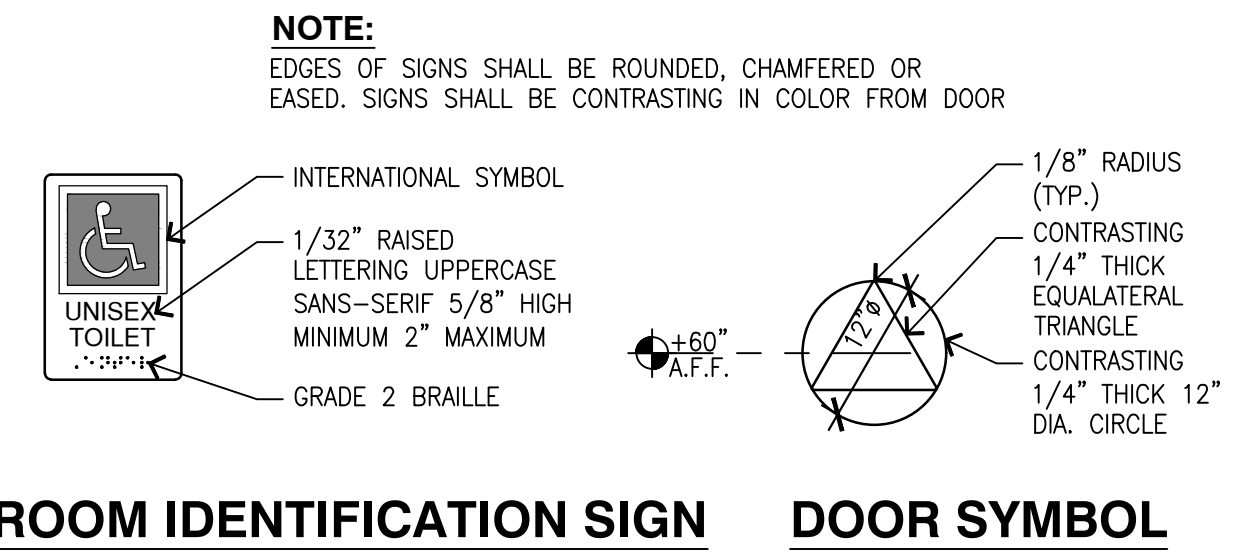
INTERIOR
ELEVATIONS

SHEET NO:

A2.5



RESTROOM ACCESSORIES					
TYPE	QTY	ITEM	MANUFACTURER	MODEL	DESCRIPTION
A	2	TOILET TISSUE DISPENSER	BOBRICK	B-2890	SINGLE JUMBO-ROLL SURFACE MOUNTED, SATIN-FINISH STAINLESS STEEL
B	2	MIRROR	SENTRY		20"x30" SEAMED EDGE MIRROR W/ FOAM BACKING AND PLEXIGLASS SHIELD, POLISHED STAINLESS STEEL
C	2	UTILITY HOOK	BOBRICK	B-6707	SATIN-FINISH STAINLESS STEEL
D	2	GRAB BAR (REAR)	BOBRICK	B-6806 x 36	1-1/2" DIA. 18 GA. SATIN-FINISH STAINLESS TUBING W/ CONCEALED MOUNTING
E	2	GRAB BAR (SIDE)	BOBRICK	B-6806 x 42	1-1/2" DIA. 18 GA. SATIN-FINISH STAINLESS TUBING W/ CONCEALED MOUNTING
F	2	GRAB BAR (VERTICAL)	BOBRICK	B-6806 x 18	1-1/2" DIA. 18 GA. SATIN-FINISH STAINLESS TUBING W/ CONCEALED MOUNTING
G	2	SOAP DISPENSER	BOBRICK	B-2111	SURFACE MOUNTED VERTICAL TANK SATIN-FINISH STAINLESS STEEL
H	2	WASTE RECEPTACLE	BOBRICK	B-279	SURFACE MOUNTED UNIT, SATIN-FINISH STAINLESS STEEL
J	2	BABY CHANGING STATION	KOALA KARE	KB200-00	CREAM COLOR POLYPROPYLENE CABINET AND BED
K	2	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	SURFACE MOUNTED SATIN-FINISH STAINLESS STEEL
L	2	SEAT COVER DISPENSER	BOBRICK	B-4221	SURFACE MOUNTED SATIN-FINISH STAINLESS STEEL
M	2	HAND DRYER	NEWTON	XL-SB	XLERATOR, SURFACE MOUNTED BRUSHED STAINLESS STEEL
M1	2	HAND DRYER WALL GUARD	EXCEL	89S	XLERATOR, BRUSHED STAINLESS STEEL; 31.75" x 15.75"



- GENERAL NOTES**
- REFER TO SHEET Q1.1 FOR EQUIPMENT PLAN.
 - REFER TO SHEET Q2.1 FOR EQUIPMENT SCHEDULE.
 - ALL EQUIPMENT SHALL MEET LOCAL ACCESSIBILITY REQUIREMENTS.
 - PROVIDE STAINLESS STEEL CORNER GUARDS AT EDGES BELOW 6'-0" AND FULL HEIGHT AT CORNERS WITH WALL TILE.
 - PROVIDE PVC TRIM AT ALL FRP EDGES.
 - PROVIDE 4" HIGH BACKSPASH AT ALL COUNTERTOPS THAT TERMINATE AT WALL. BACKSPASH TO MATCH COUNTERTOP MATERIAL.
- KEYED NOTES**
- G.C. TO PROVIDE BLOCKING FOR RESTROOM ACCESSORIES AS REQUIRED BY MFR, DASHED LINES ON ELEVATIONS REPRESENT APPROXIMATE LOCATION OF BLOCKING.
 - G.C. TO INSTALL TRUEBRO LAVGUARD- UNDERSINK PIPE COVERS FOR SUPPLY AND DRAIN VALVE.
 - CO2 ALARM WARNING SIGN MOUNTED NEXT TO THE UNIT.
 - 12"x36" VISION PANEL.
 - SINTRA GRAPHIC PANEL PROVIDED & INSTALLED BY SIGN CONTRACTOR
 - VINYL GRAPHIC PROVIDED & INSTALLED BY SIGN CONTRACTOR

- FINISH SYMBOLS**
- PAINT COLOR**
- P-4 BENJAMIN MOORE, 1079, "BAYSHORE BEIGE" EGGSHELL FINISH
 - P-5 BENJAMIN MOORE, 2121-70, "CHANTILLY LACE" SEMI-GLOSS FINISH
- NOTE:** FOOD SERVICE AREAS AND RESTROOMS SHALL BE SEMI-GLOSS FINISH
- WALL TILE**
- WT-1 PORCELAIN TILE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF11 "NOCE"
SIZE: 12"x24"
GROUT: 1/8" #386 OYSTER GRAY BY CUSTOM BUILDING PRODUCTS
 - WT-2 MOSAIC TILE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF13 "SEASON BLEND"- RANDOM LINEAR MOSAIC
SIZE: 12"x27" SHEET (MECH MOUNTED)
GROUT: 1/8" #386 OYSTER GRAY BY CUSTOM BUILDING PRODUCTS
- LAMINATE**
- L-1 WOOD PLASTIC LAMINATE - FORMICA #9484-NG OXIDIZED BEAMWOOD NATURAL GRAIN
- COUNTERTOP**
- CT-1 SOLID SURFACE - FORMICA, LUNA SAND #757 (EASED EDGE)
 - SOLID SURFACE - BASIX INTERNATIONAL PRIMA DECORA/ACADIA (EASED EDGE)
- SUBSTRATE**
- GB-1 TYPE: 5/8" GYPSUM BOARD
 - GB-2 TYPE: 5/8" WATER-RESISTANT GYPSUM BOARD
 - PLY-1 TYPE: 5/8" PLYWOOD
 - PLY-2 TYPE: 5/8" MDO PLYWOOD
- WALL BASE**
- WB-1 CERAMIC SANITARY COVE BASE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF08 "CHOCOLATE"
SHAPE: P36C9T (CORNER- PC36C9T)
SIZE: 6"x12"
GROUT: 1/8" #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS
 - WB-2 QUARRY COVE BASE
MFR: DALTILE
PRODUCT: QUARRY
COLOR: 0040
SHAPE: Q-3565
SIZE: 5"x6"
GROUT: 3/8" #540 TRUFFLE BY CUSTOM BUILDING PRODUCTS
 - WB-3 PORCELAIN COVE BASE
MFR: DALTILE
PRODUCT: PORTFOLIO
COLOR: PF11 "NOCE"
SHAPE: P36C9T (CORNER- PC36C9T)
SIZE: 6"x24"
GROUT: 1/8" #386 OYSTER GRAY BY CUSTOM BUILDING PRODUCTS

RESTROOM CLEAR FLOOR SPACE	
ITEM	SPACE REQUIRED, MIN CLR
A TOILET	60" x 59"
B SINK, URINAL, BABY CHANGER	30" x 48"
C PUSH SIDE OF 3'-0" DOOR FRONT APPROACH	48" x 48" 12" MIN CLR ON PUSH SIDE
D PULL SIDE OF 3'-0" DOOR LATCH SIDE APPROACH	60" x 54" 18" MIN CLR ON PULL SIDE
E TURNING SPACE	60" DIA.

THIS DRAWING IS PROTOTYPICAL AND MUST BE REVIEWED AND ADAPTED FOR LOCAL & STATE BUILDING CODES, TYP.

CLIENT:

bp

ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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10697 REGISTERED ARCHITECT
PANEL B GOALMIN
STATE OF WASHINGTON
EXP: 08/05/24

DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98571

FACILITY #7184

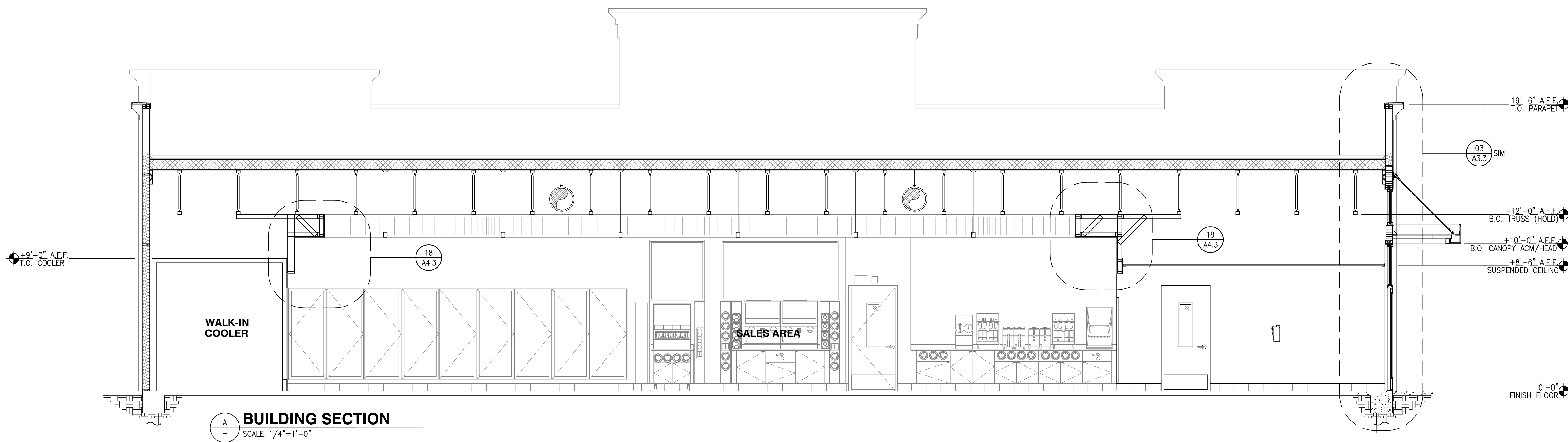
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VERSION: PROJECT NO: **21730**

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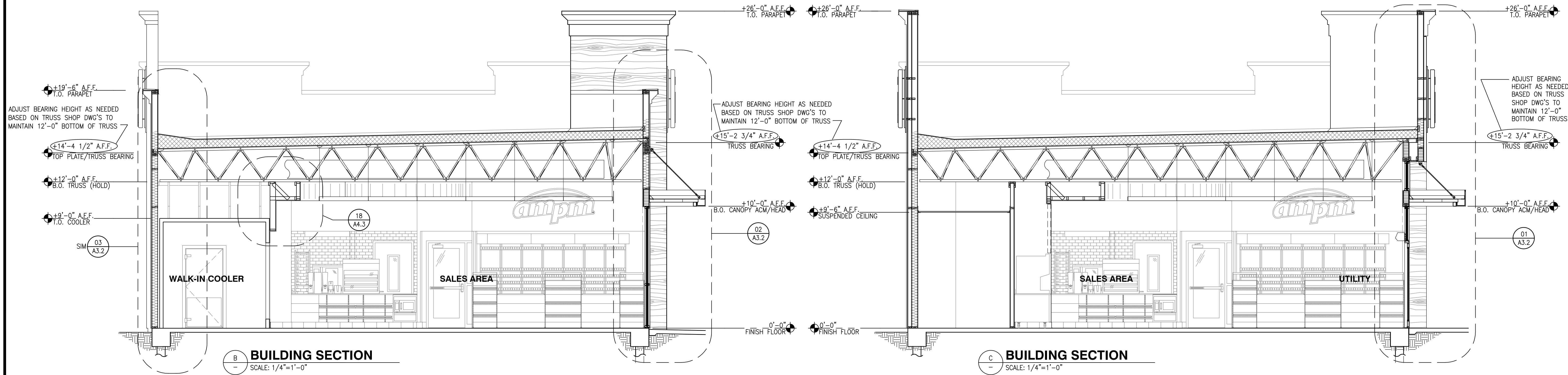
INTERIOR ELEVATIONS

SHEET NO:

A2.6

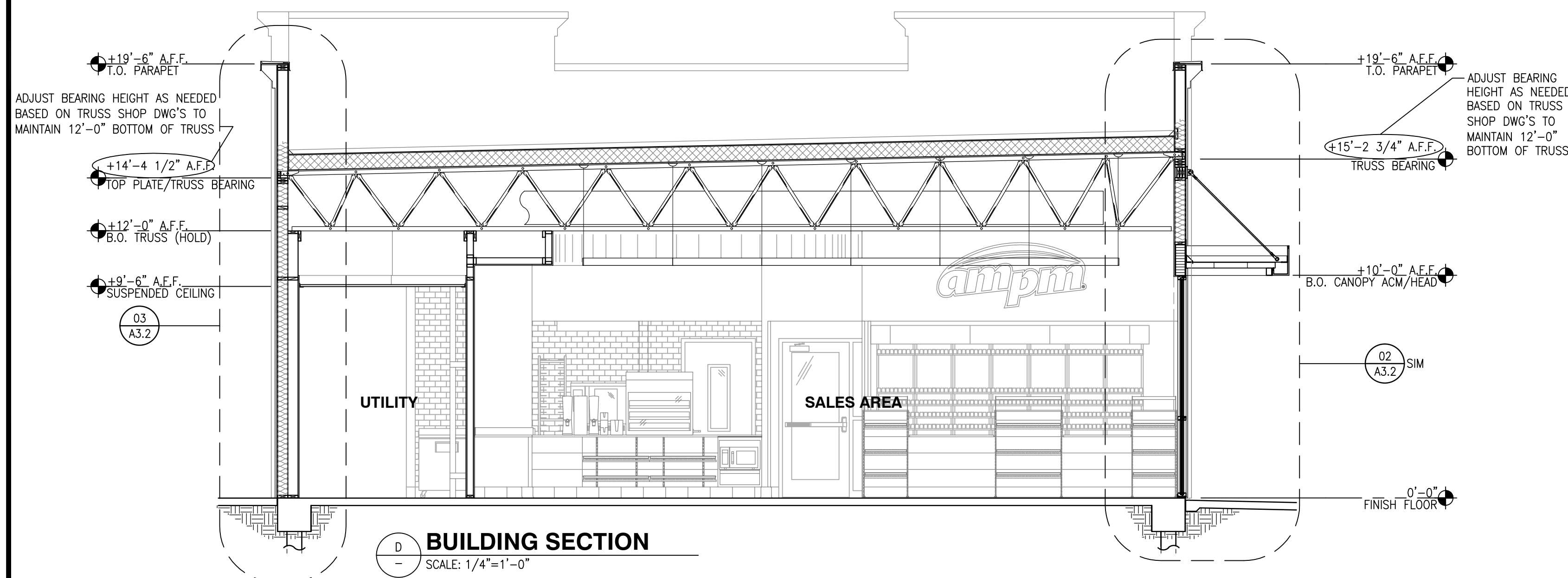


A BUILDING SECTION
SCALE: 1/4"=1'-0"



B BUILDING SECTION
SCALE: 1/4"=1'-0"

C BUILDING SECTION
SCALE: 1/4"=1'-0"

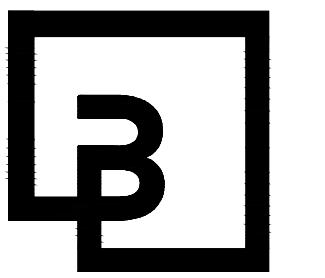
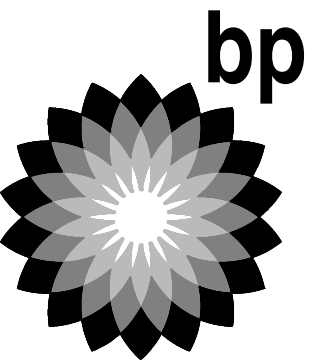


D BUILDING SECTION
SCALE: 1/4"=1'-0"

GENERAL NOTES

- SEE GENERAL PROJECT NOTES G1.1
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL FLASHING AND FOR ALL ROOF EQUIPMENT CURBS.
- GENERAL CONTRACTOR RESPONSIBLE FOR FURNISHING AND LOCATING ROOF TOP EQUIPMENT.
- SEE STRUCTURAL DRAWINGS FOR COMPLETE NOTES AND STRUCTURAL FRAMING DETAILS.
- REFER TO TYPICAL WALL SECTIONS FOR DIMENSIONS AND MATERIALS.

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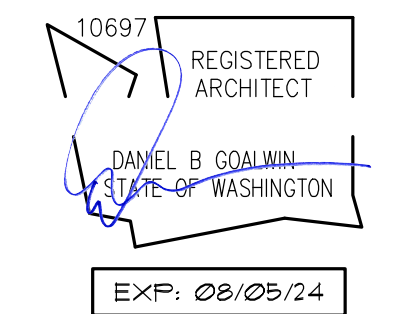


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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

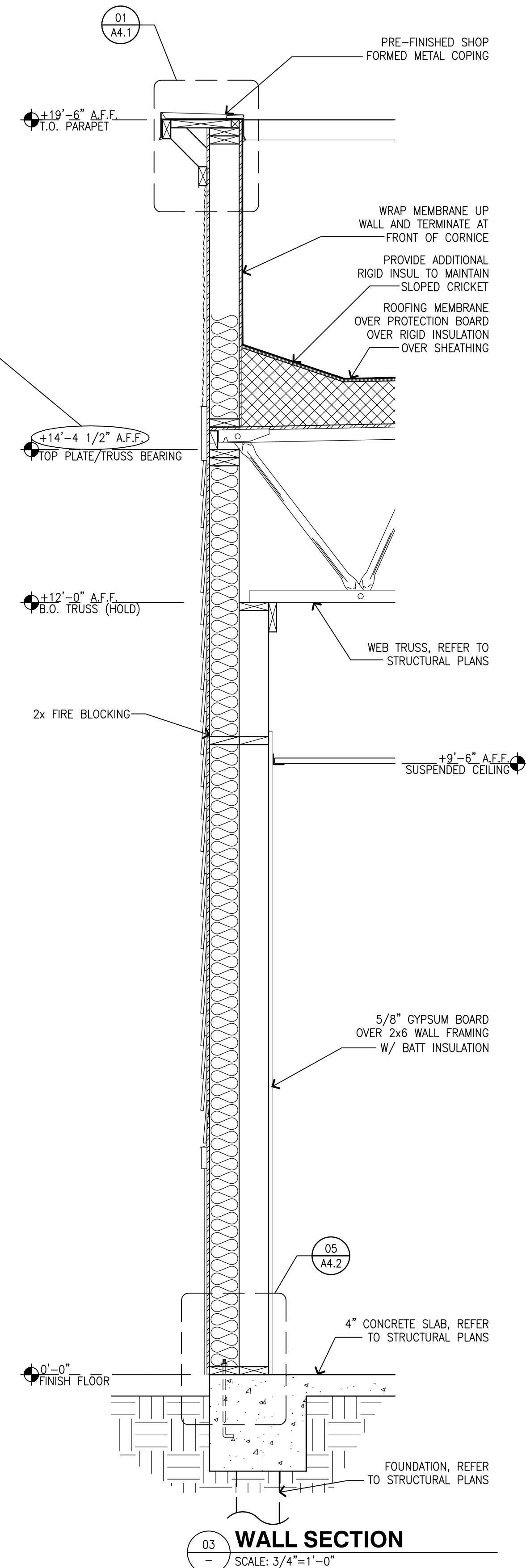
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VERSION:	PROJECT NO:
	21730

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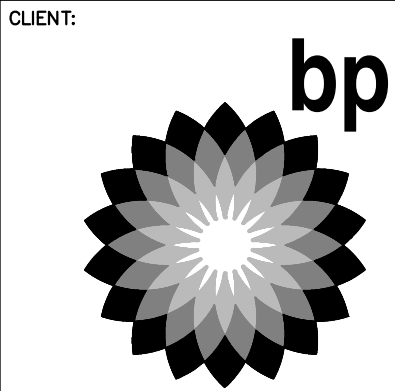
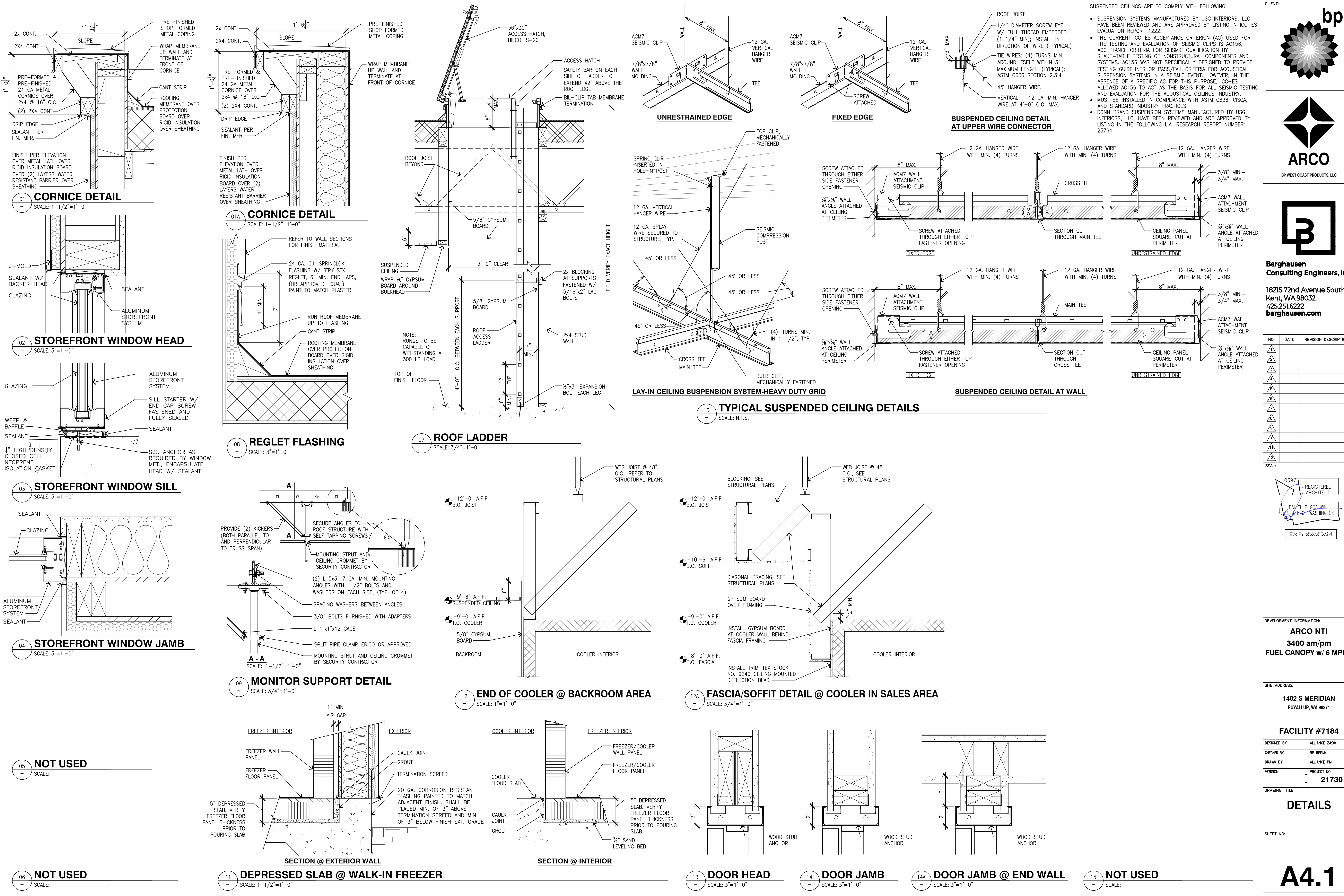
BUILDING SECTIONS

SHEET NO:

A3.1



A3.2



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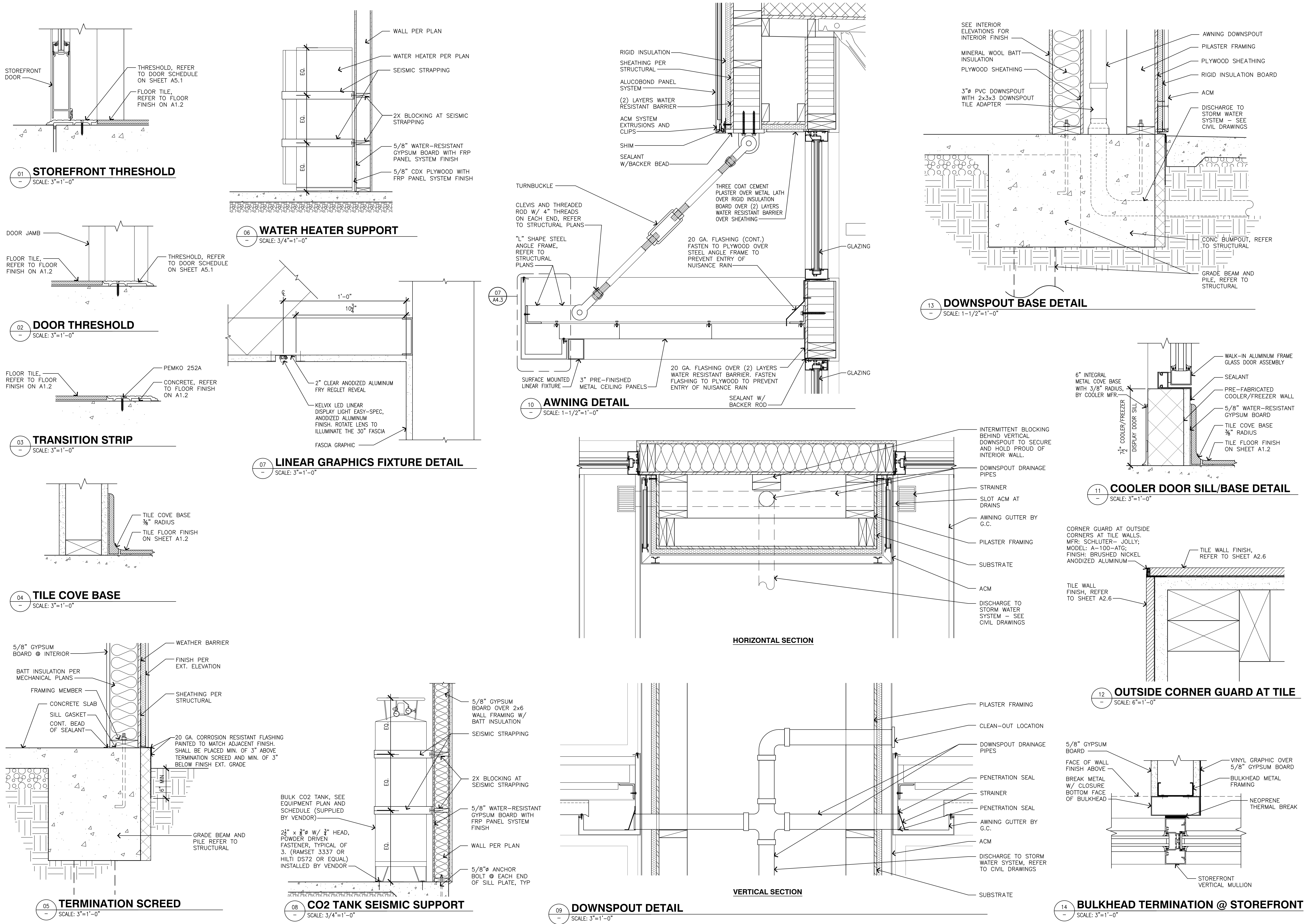
10697 REGISTERED ARCHITECT
DANIEL B. COALMIN
STATE OF WASHINGTON
EXP: 08/05/24

DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184
DESIGNED BY: ALLIANCE TADM:
CHECKED BY: BP REPM:
DRAWN BY: ALLIANCE PM:
VERSION: PROJECT NO:
21730

DRAWING TITLE:
DETAILS
SHEET NO:
A4.1



BP WEST COAST PRODUCTS, LLC

ARCO

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Kent, WA 98032
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10697 REGISTERED ARCHITECT

PANEL B COALMIN
STATE OF WASHINGTON

EXP: 08/05/24

DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN

PUYALLUP, WA 98571

FACILITY #7184

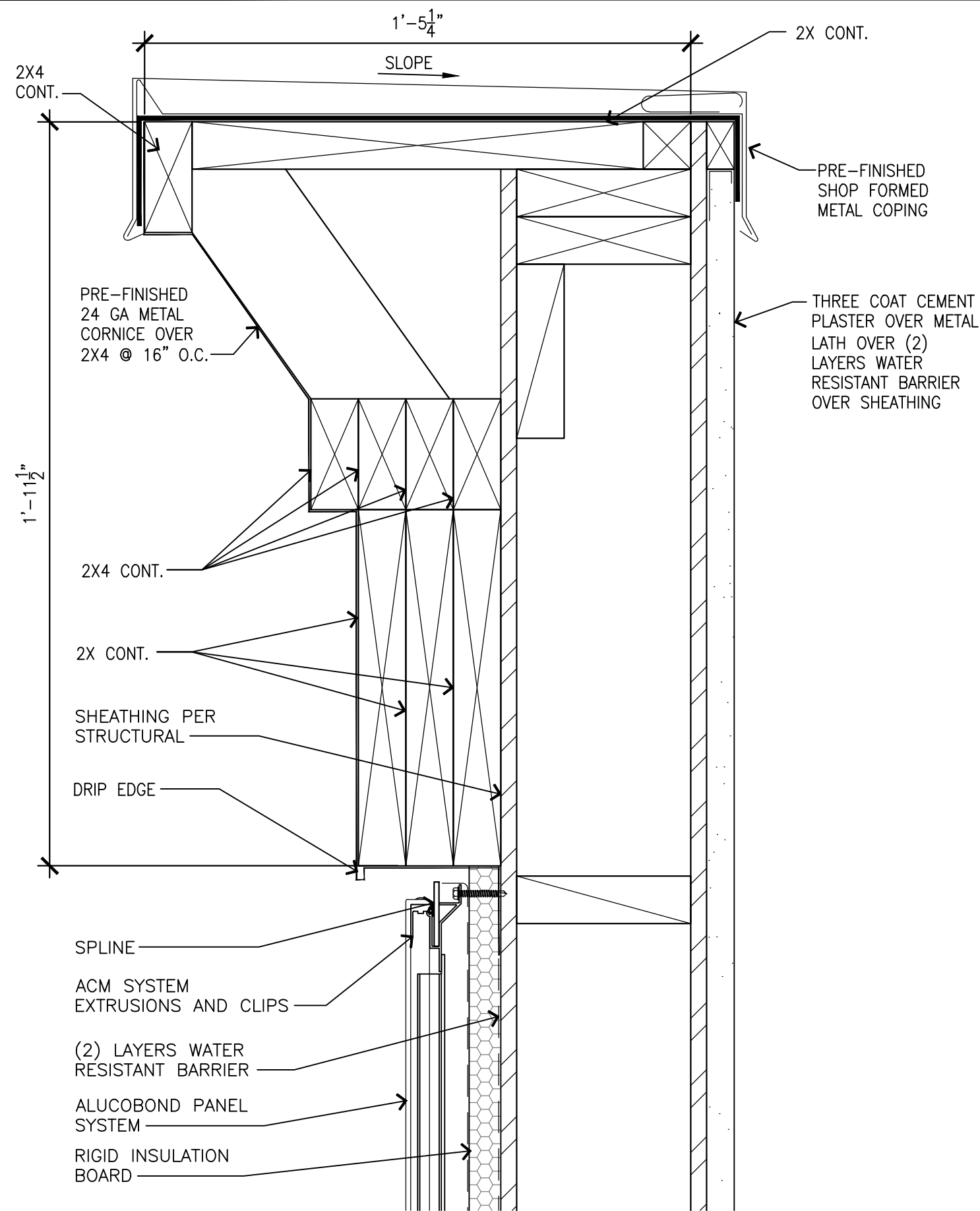
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VERSION:	PROJECT NO: 21730

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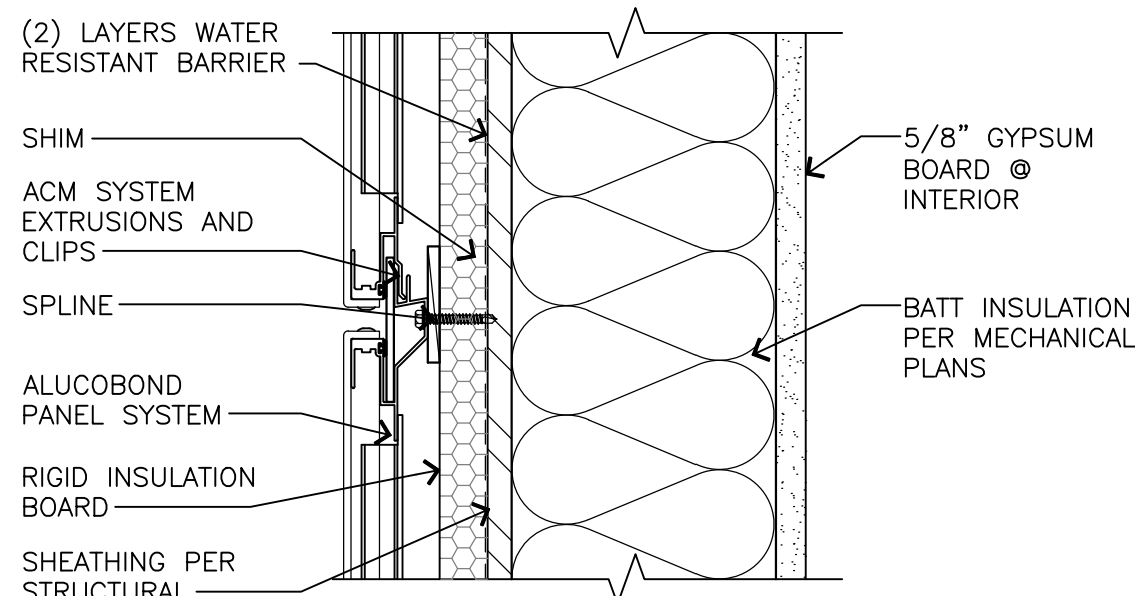
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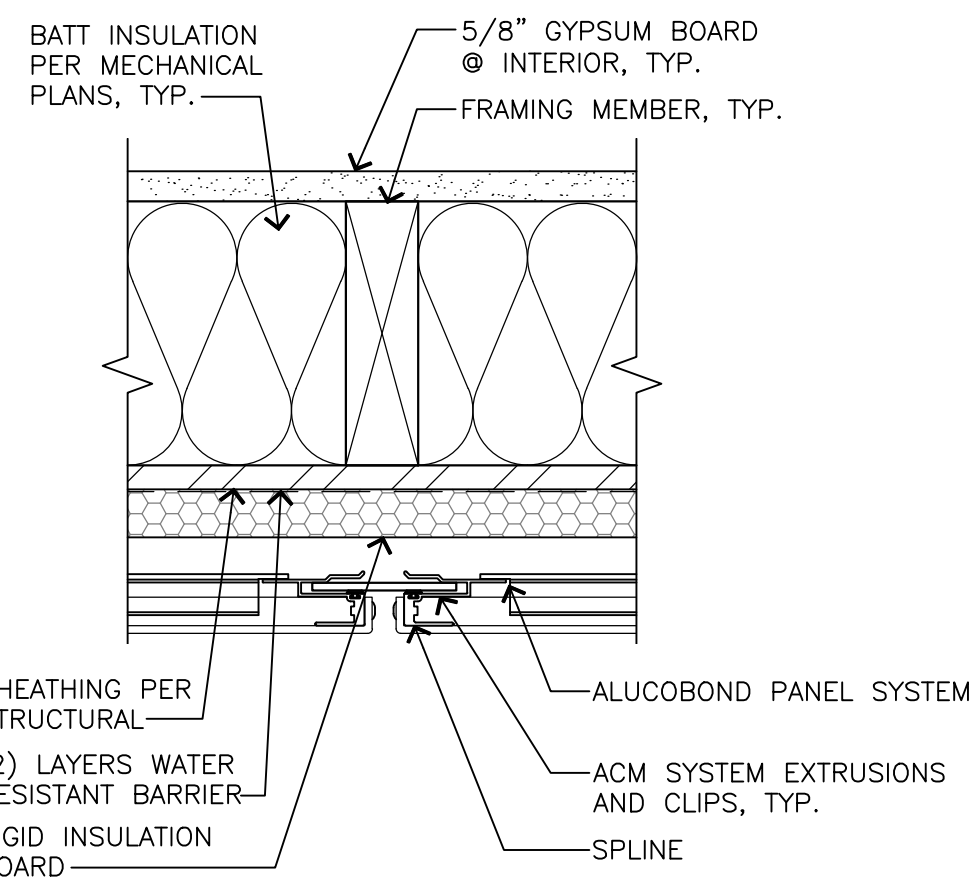
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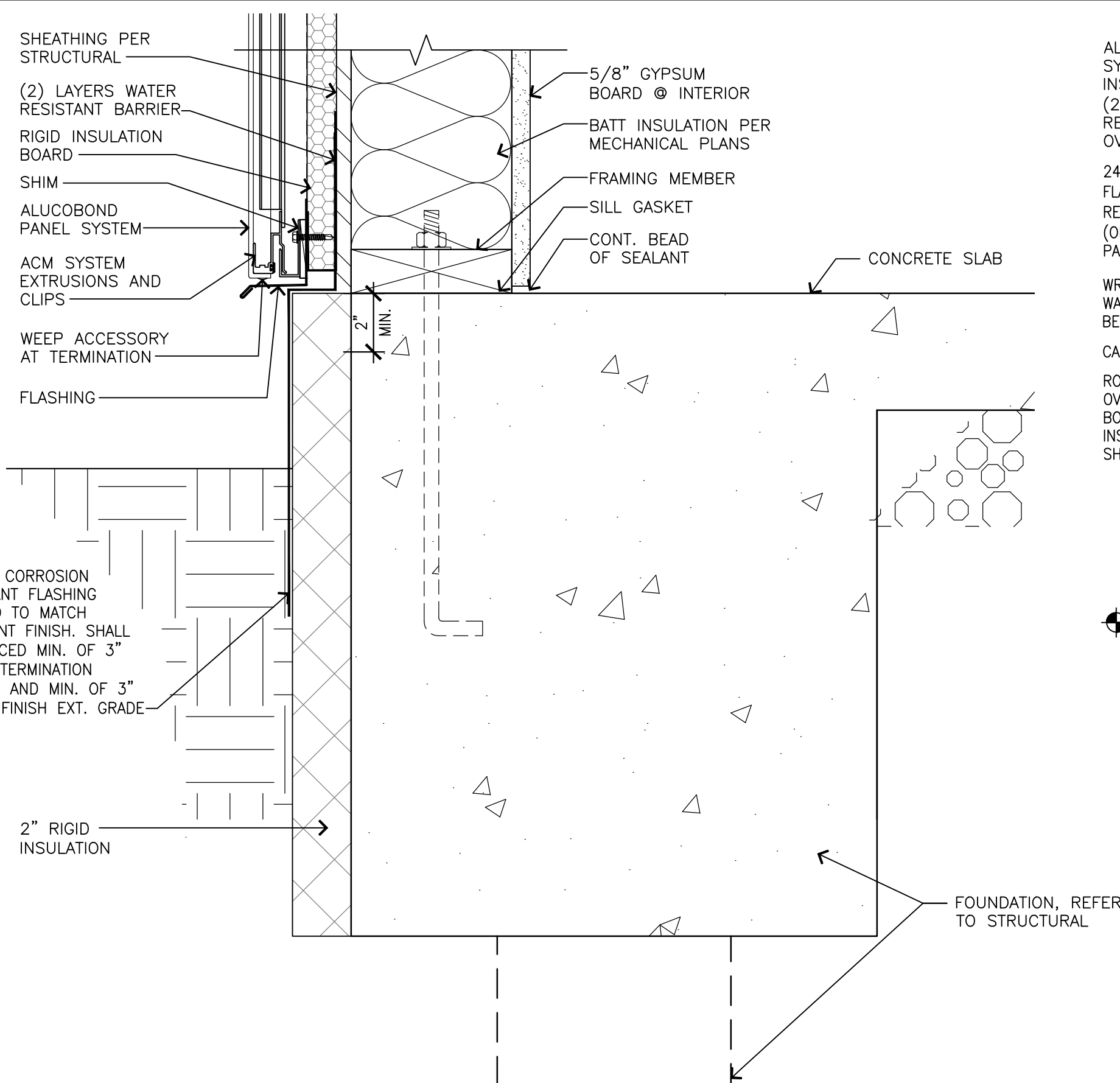
01 ACM CORNICE DETAIL
SCALE: 3"=1'-0"



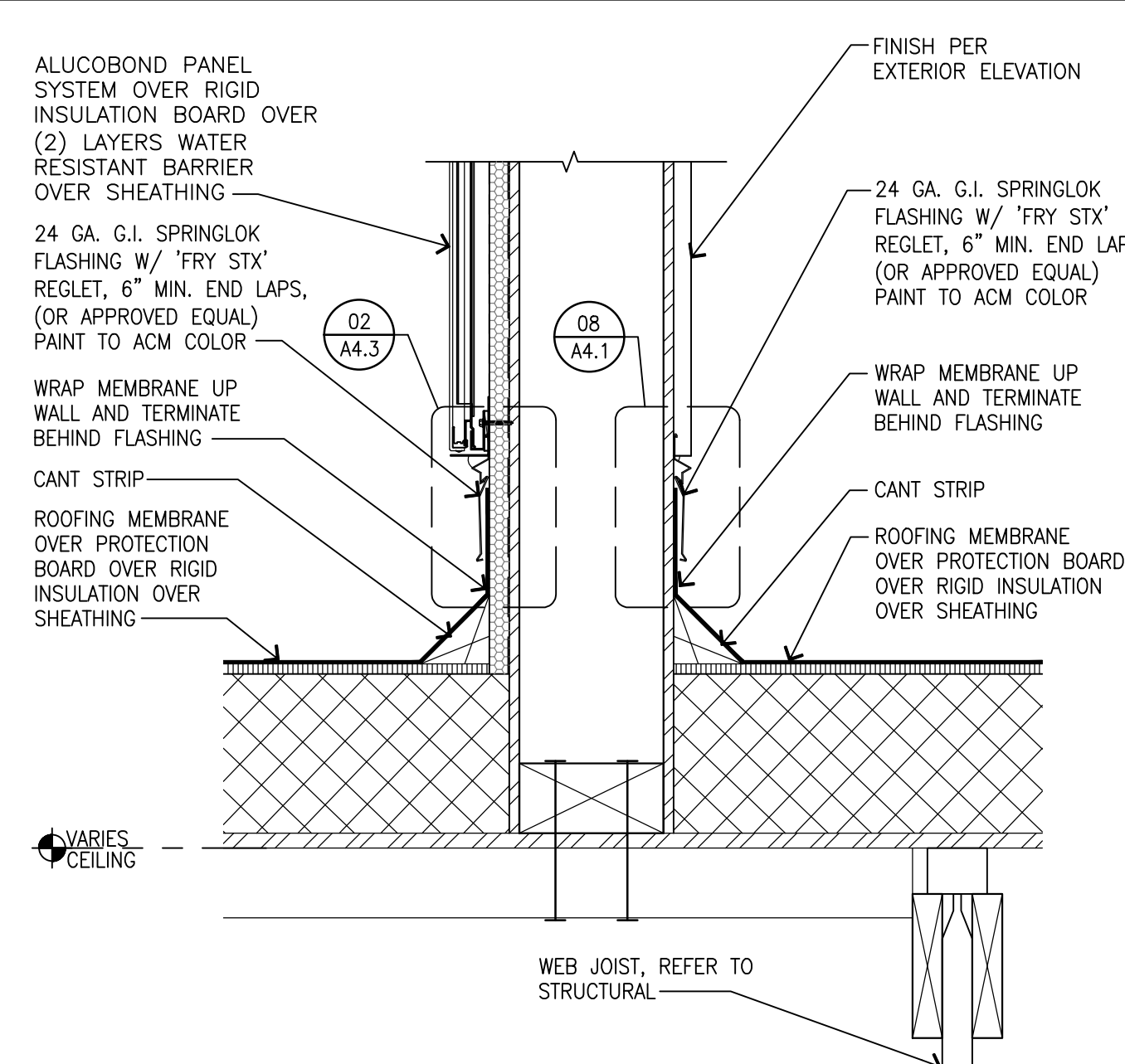
03 ACM HORIZONTAL JOINT DETAIL
SCALE: 3"=1'-0"



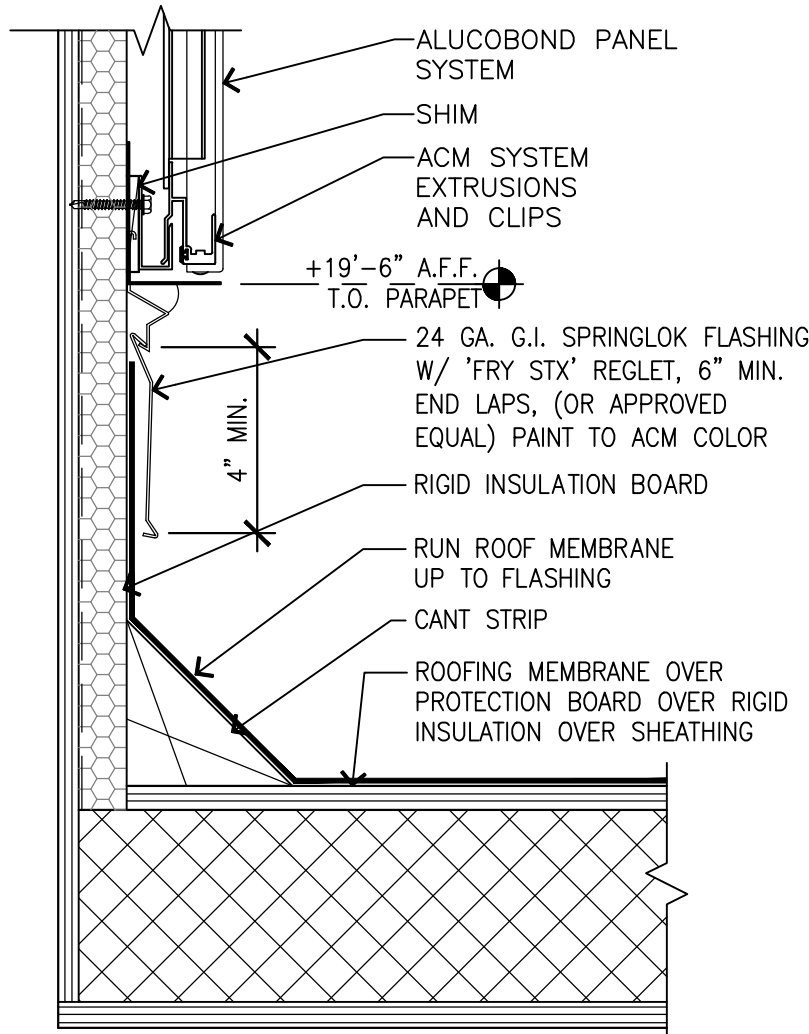
04 ACM VERTICAL JOINT DETAIL
SCALE: 3"=1'-0"



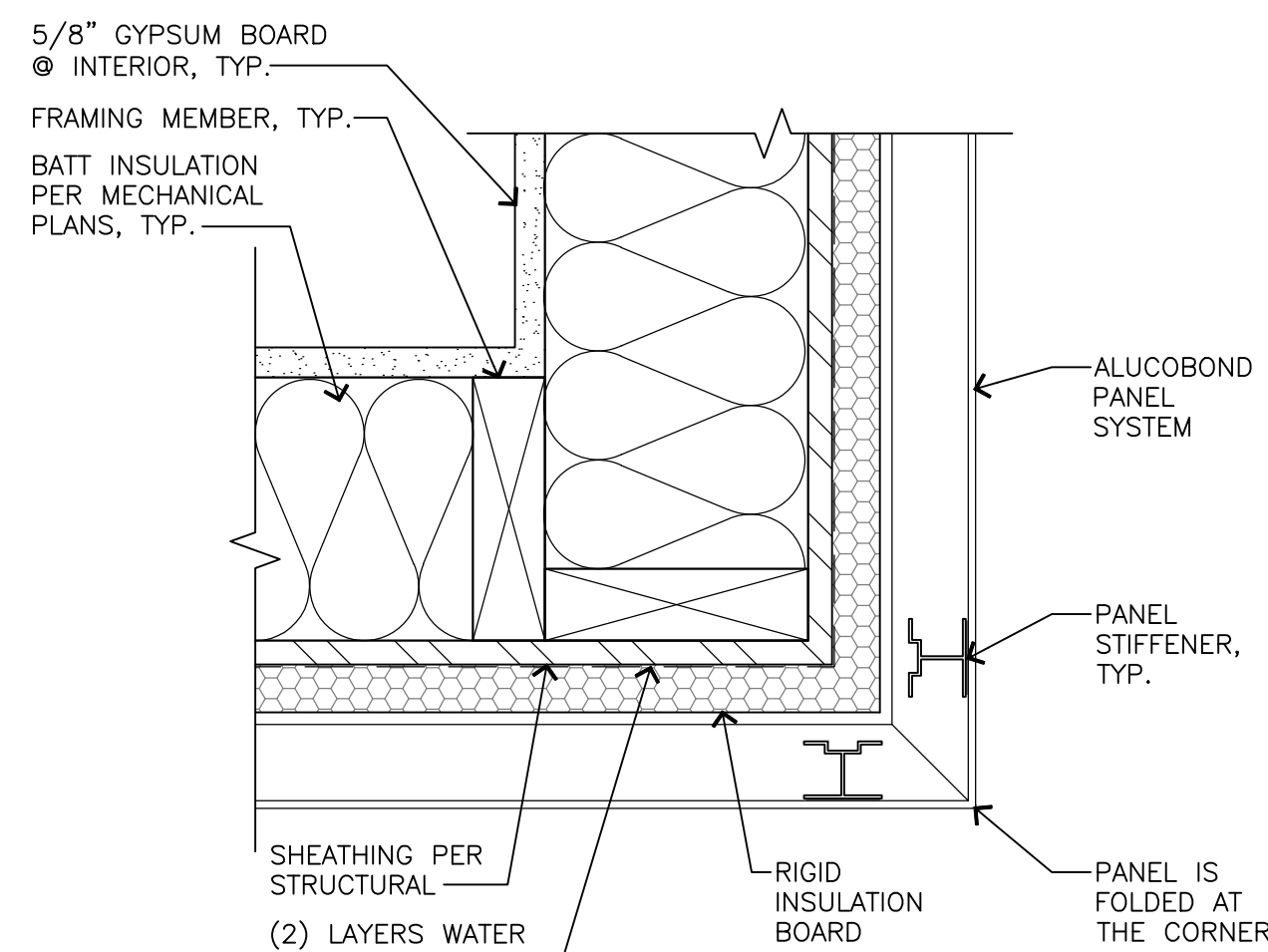
06 ACM BASE TERMINATION DETAIL
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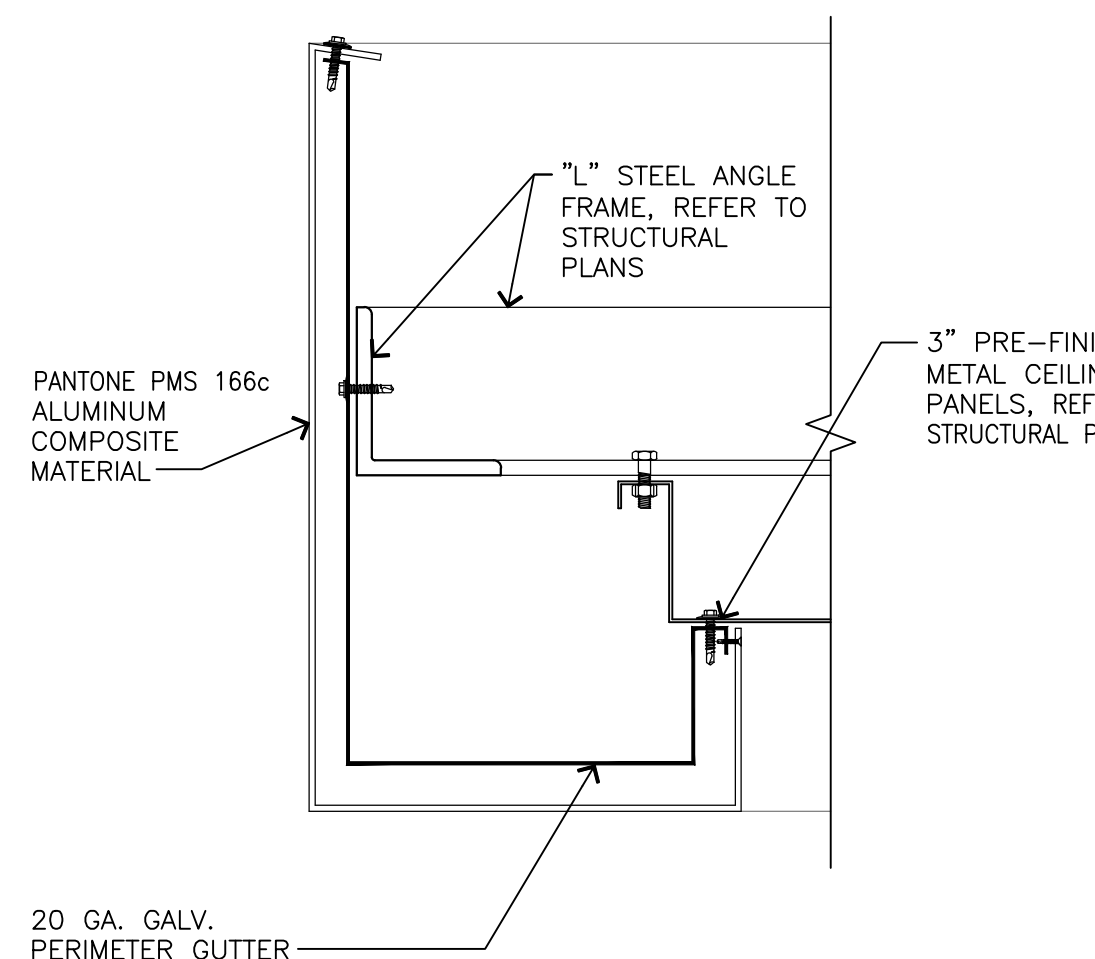
10 TOWER FRAMING DETAIL AT ROOF
SCALE: 1'-1/2"=1'-0"



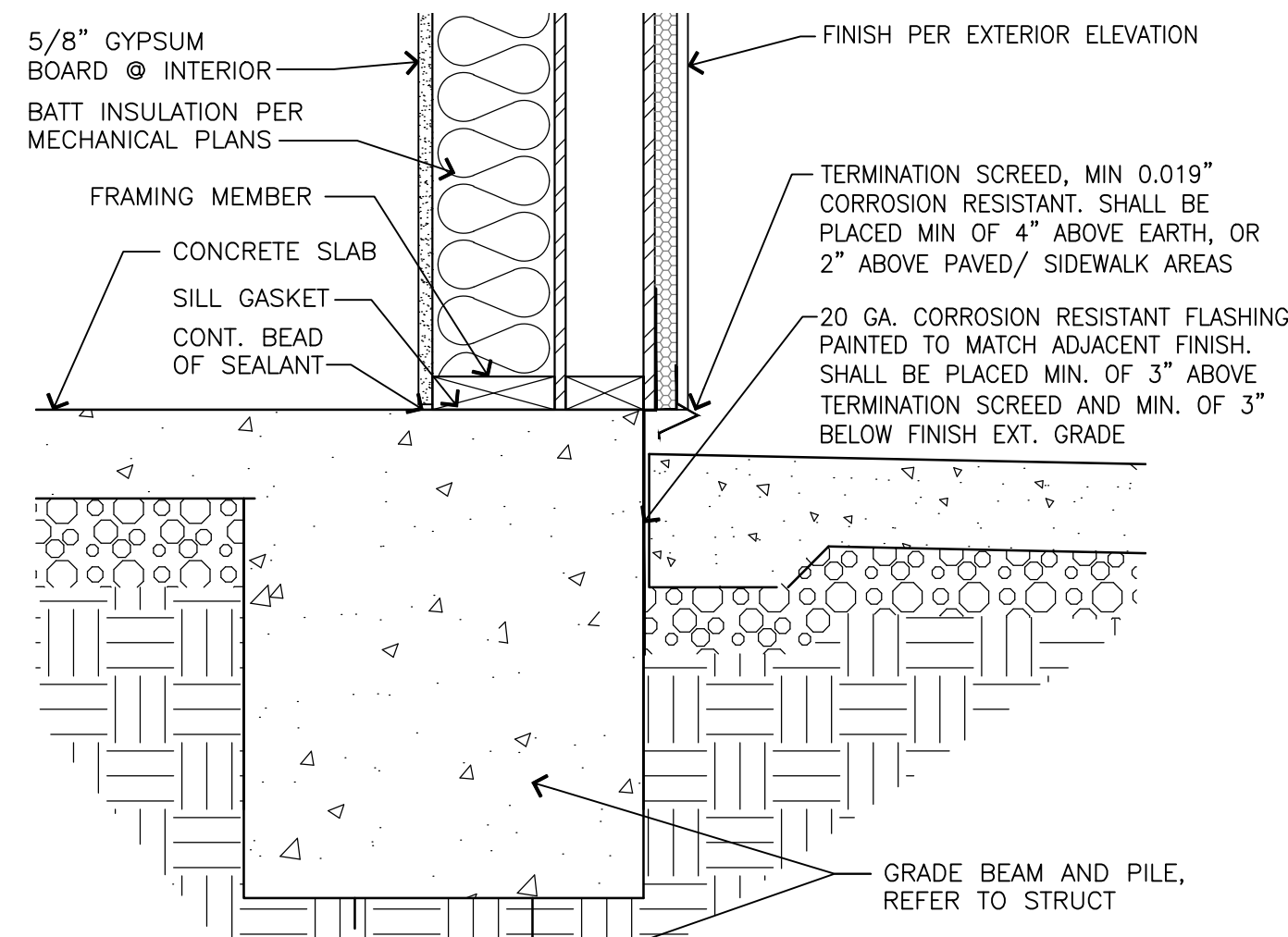
02 REGLET FLASHING
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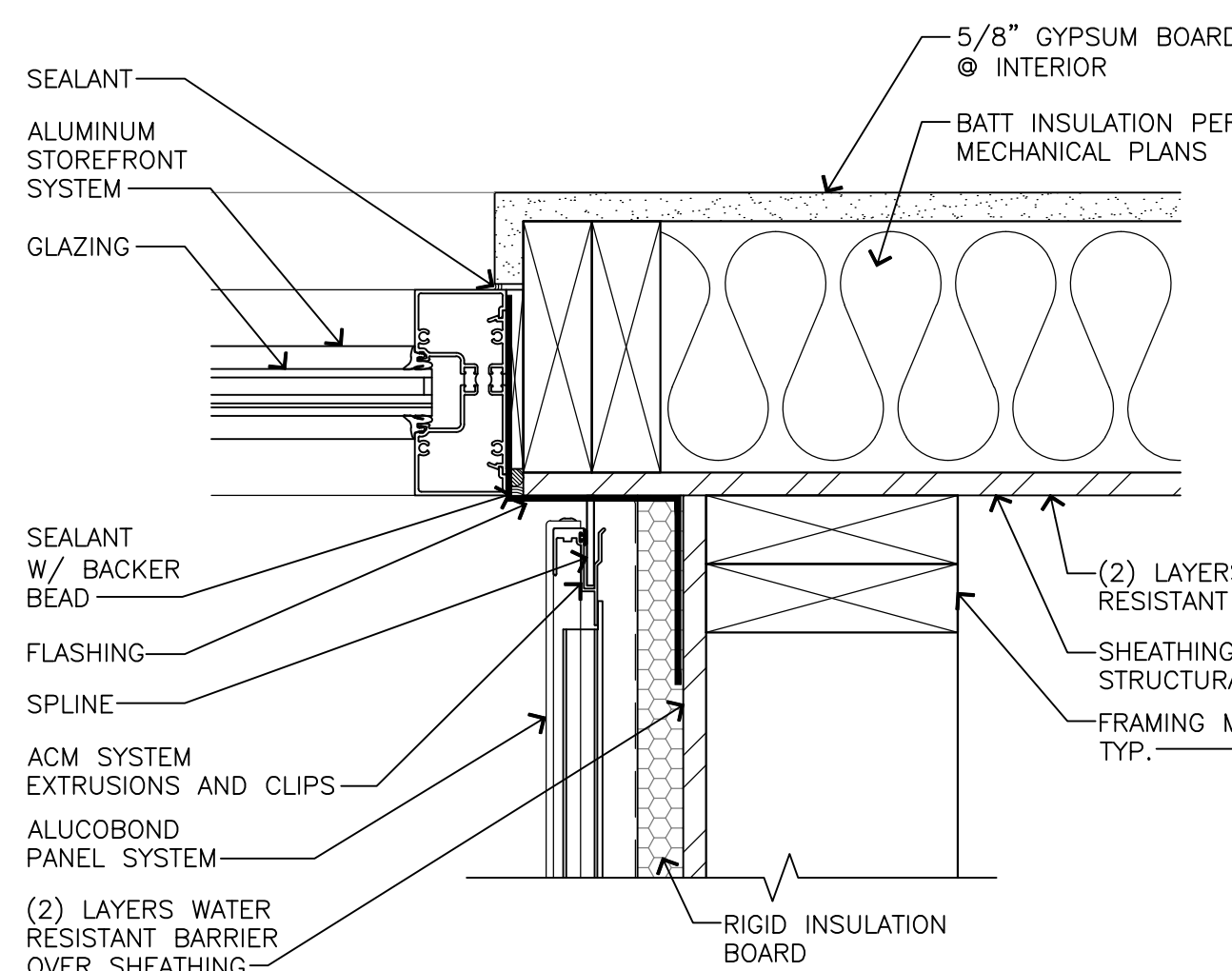
05 ACM OUTSIDE CORNER DETAIL
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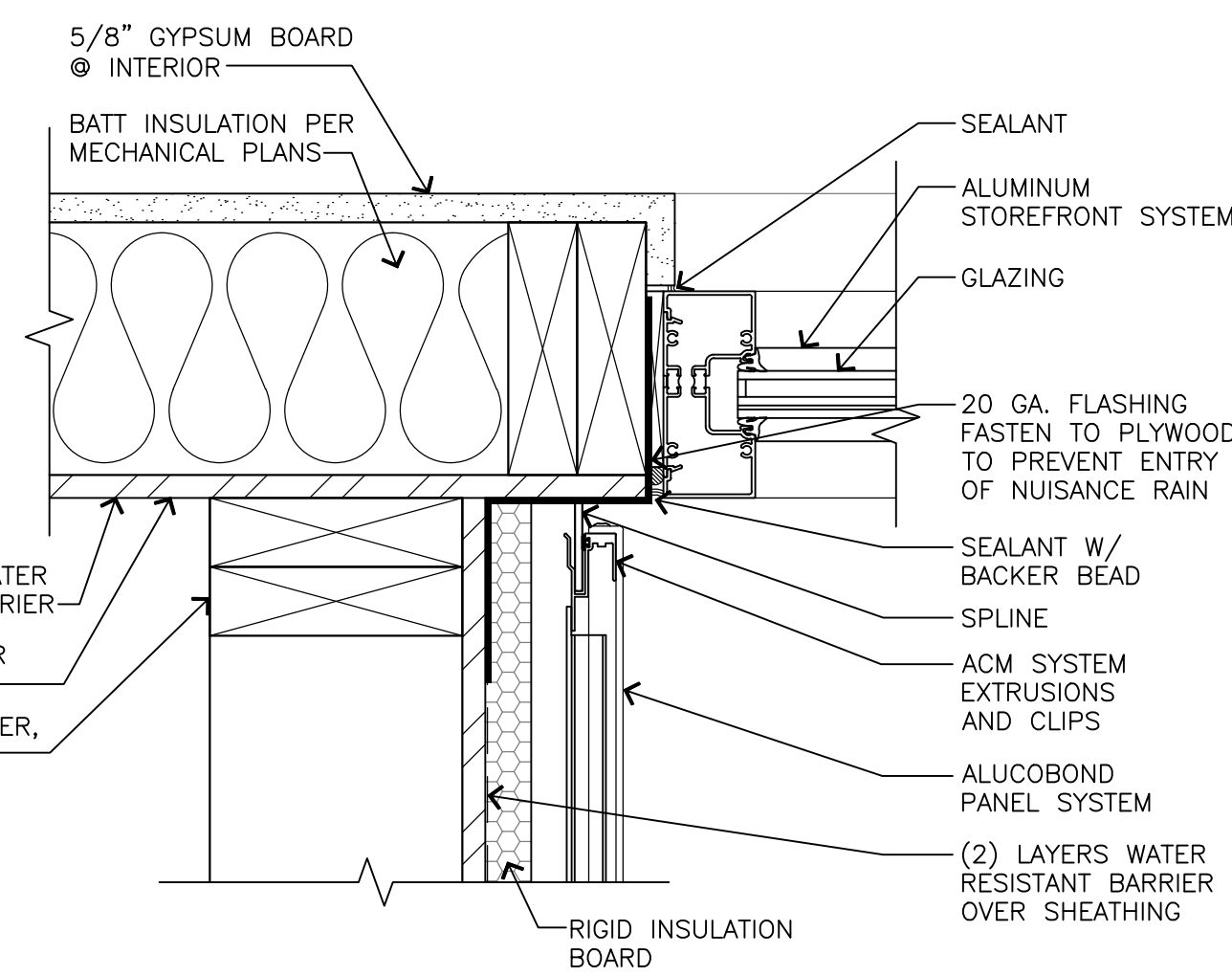
07 ACM AT AWNING
SCALE: 3"=1'-0"



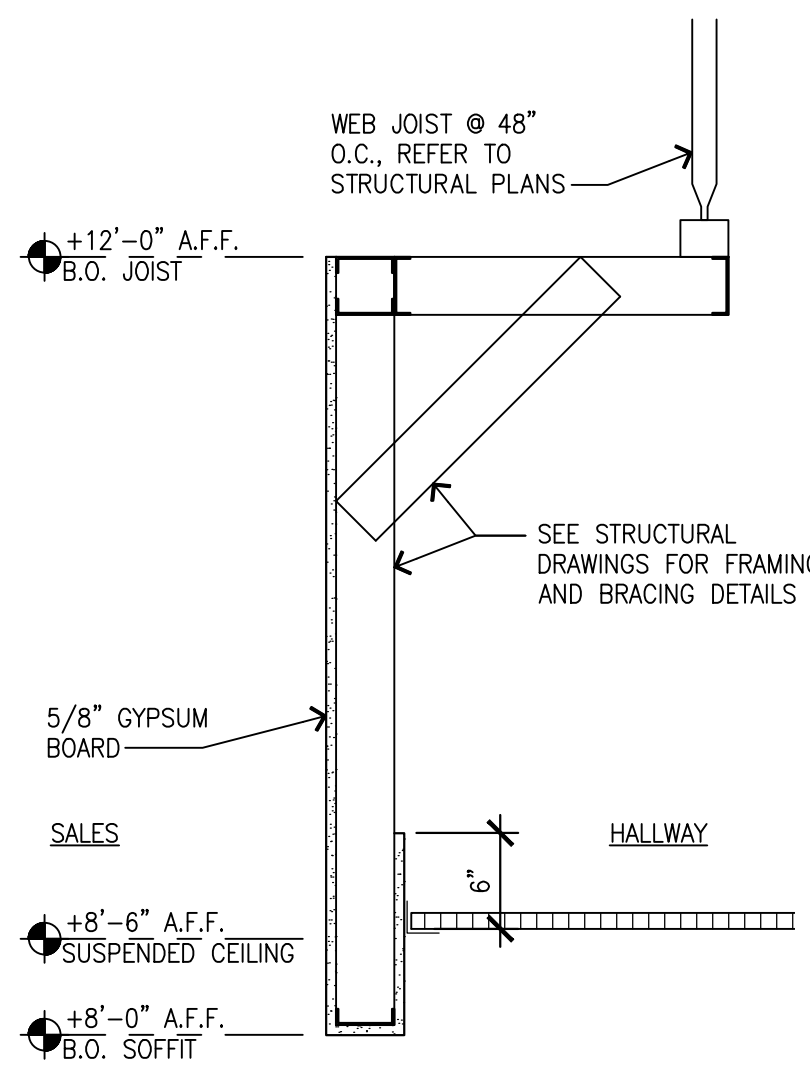
11 TERMINATION @ SIDE TOWER
SCALE: 1'-1/2"=1'-0"



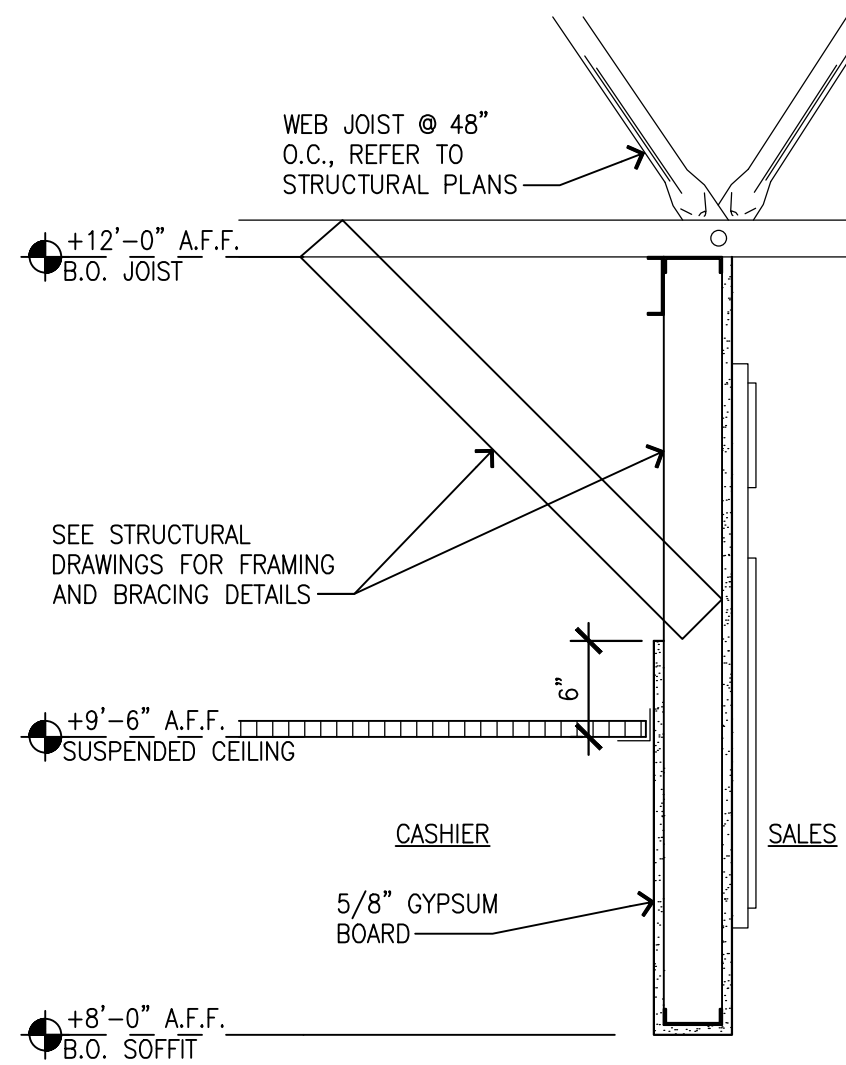
08 STOREFRONT WINDOW JAMB
SCALE: 3"=1'-0"



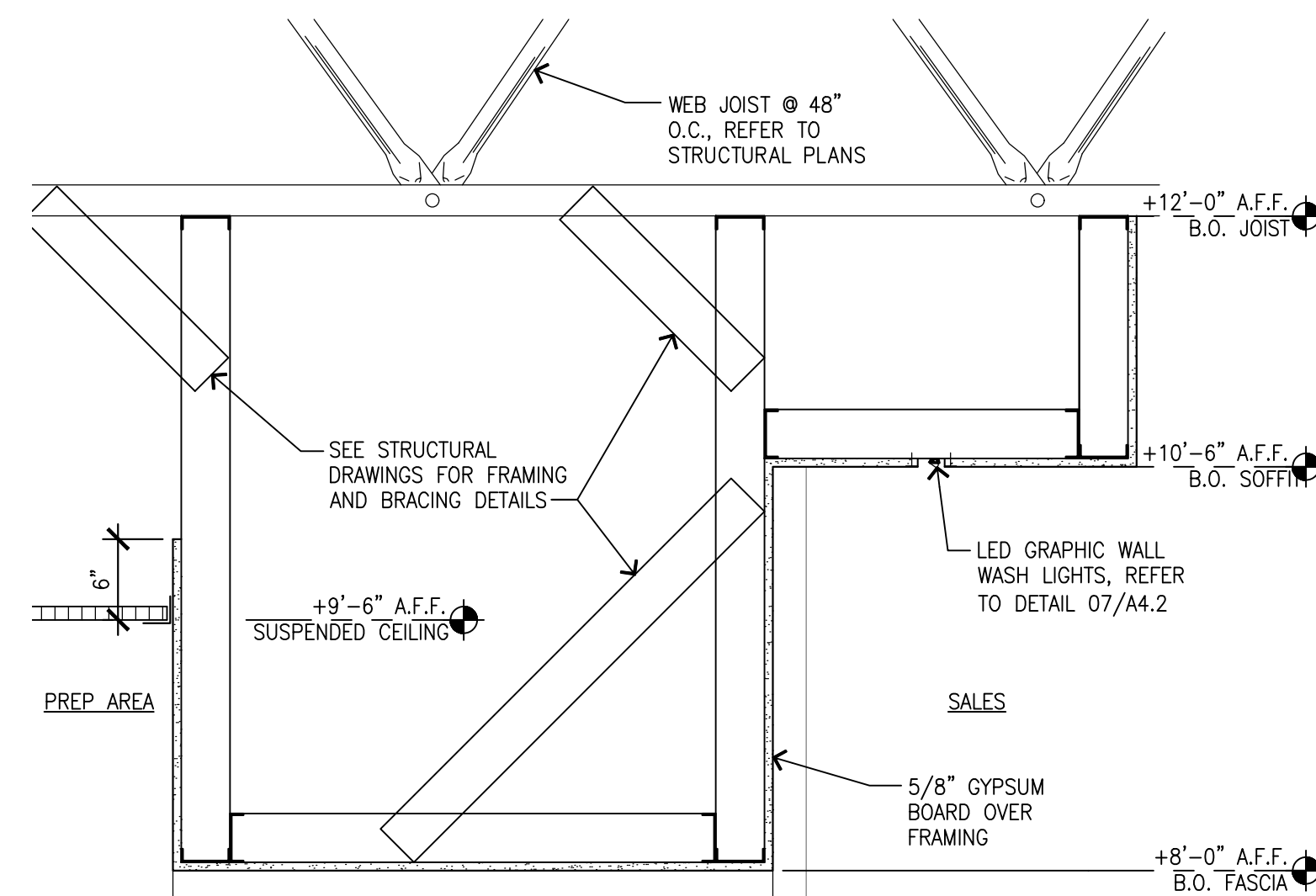
09 ACM ENDWALL PLAN @ PILASTER DETAIL
SCALE: 3"=1'-0"



12 BULKHEAD AT HALLWAY
SCALE: 1"=1'-0"



13 BULKHEAD AT CASHIER
SCALE: 1"=1'-0"



14 SOFFIT AT HOT FOOD COUNTER
SCALE: 1"=1'-0"

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10697 REGISTERED ARCHITECT
DANIEL B. COALMIN
STATE OF WASHINGTON
EXP: 08/05/24

DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98471

FACILITY #7184

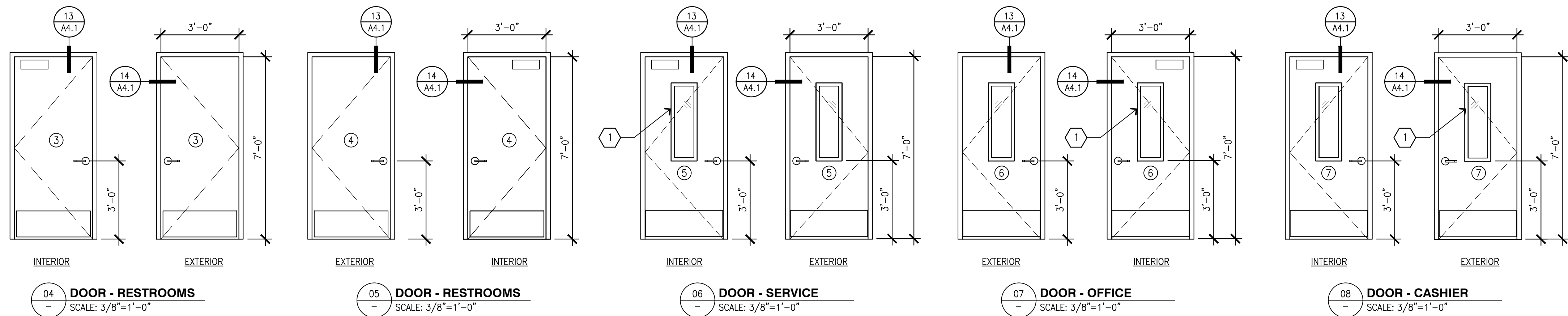
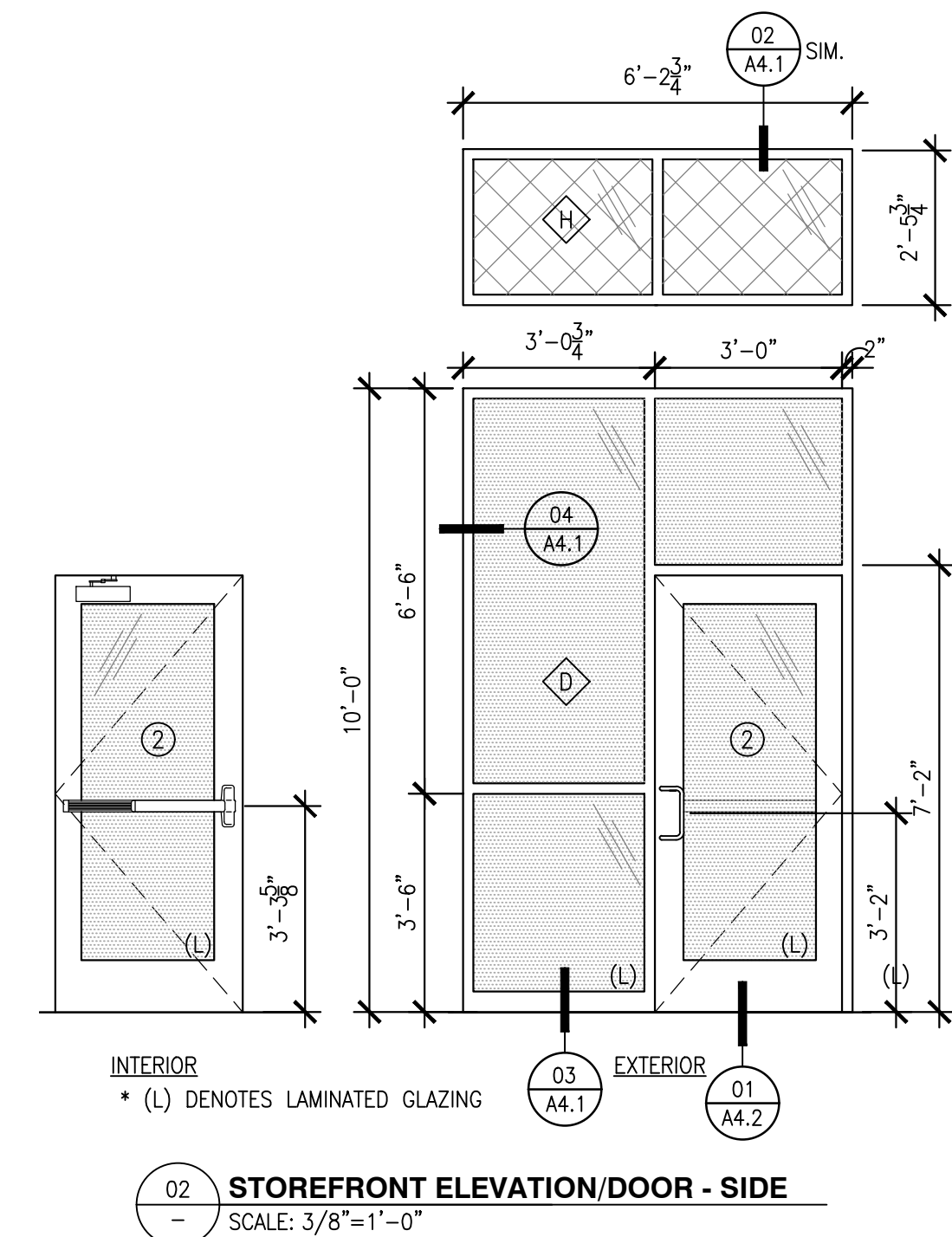
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CHECKED BY: BP REPA:
DRAWN BY: ALLIANCE PM:
VERSION: PROJECT NO: 21730

DRAWING TITLE:

DETAILS

SHEET NO:

A4.3



WINDOW SCHEDULE							
TYPE	SIZE	QTY	MFR/MODEL	GLAZING	FRAME	RATING	REMARKS
A	17'-1"W x 10'-0"H	2	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 CLEAR W/ ARGON, BOTTOM PANELS	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
B	12'-0"W x 2'-5 3/4"H	1	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 CLEAR W/ ARGON, TEMPERED	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
C	12'-0"W x 10'-0"H	1	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 CLEAR W/ ARGON, TEMPERED	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING, VERTICAL MULLIONS AT DOOR SHALL SUPPORT AIR CURTAIN SIDE MOUNT MULLION BRACKET
D	6'-2 3/4"W x 10'-0"H	1	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 CLEAR W/ ARGON, LAMINATED	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
E	9-5 1/2"W x 10'-0"H	1	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 SPANDREL W/ ARGON, BOTTOM PANELS & 1 TOP PANEL LAMINATED	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
F	6'-3 1/4"W x 10'-0"H	2	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 SPANDREL W/ ARGON, BOTTOM PANELS LAMINATED	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
G	6-3 1/4"W x 2'-5 3/4"H	2	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 SPANDREL W/ ARGON	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
H	6'-2 3/4"W x 2'-5 3/4"H	1	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 SPANDREL W/ ARGON	#14 CLEAR ANODIZED ALUMINUM	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING
I	9-5 1/2"W x 2'-5 3/4"H	1	KAWNEER TRIFAB 451UT FRAMING	SOLARBAN 70 SPANDREL W/ ARGON	#14 CLEAR ANODIZED	LOW-E	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING

DOOR HARDWARE SCHEDULE

<p>(1) STOREFRONT DOOR:</p> <ul style="list-style-type: none">• KAWNEER CONTINUOUS GEARED HINGE• PUSH BAR• PULL HARDWARE• LCN 4040XP, DOOR MOUNT CLOSER, HEAVY DUTY WITH CUSH ARM• ADAMS RITE DEAD BOLT W/ KEY BOTH SIDES• MORTISE CYLINDER, SCHLAGE #20-013, 626 FINISH• PAIR FLUSH BOLTS IN IN-ACTIVE LEAF• SADDLE THRESHOLD, PEMKO #255Ax72"• DOOR BOTTOM SEAL, PEMKO #222Avx36" <p>FURNISH AND INSTALL IMPACT RESISTANT GLASS AND SASH TO COMPLY W/ LOCAL STATE CODE REQUIREMENTS.</p>	<p>(4) SERVICE DOOR:</p> <ul style="list-style-type: none">• 1-1/2" PAIR FULL MORTISED STAINLESS STEEL BUTT HINGES (4-1/2"x4-1/2") MCKINNEY MPB91, 630 FINISH• HEAVY DUTY OVERHEAD CLOSER, LCN 1461• LEVER HANDLE WITH KEY OUTSIDE AND PUSH BUTTON INSIDE LOCKSET (ANSI F82/SCHLAGE ND50PD LESS CORE, RHODES LEVER 626, BEST CORE W/ 626 FINISH• 12"x34" STAINLESS STEEL KICK PLATE (BOTH SIDES)• FLOOR STOP, TRIMCO 1211 DOME STOP, 626 FINISH• 12"x36"x¼" TEMPERED VISION PANEL
<p>(2) SIDE EXTERIOR DOOR:</p> <ul style="list-style-type: none">• KAWNEER CONTINUOUS GEARED HINGE• VON DUPRIN 9947-RSS-ALK CONCEALED VERTICAL ROD EXIT DEVICE W/ ALARM EXIT KIT, 626 FINISH• PULL HARDWARE• MORTISE CYLINDER, SCHLAGE #20-013, 626 FINISH• LCN 4040XP, DOOR MOUNT CLOSER, HEAVY DUTY WITH CUSH ARM• SADDLE THRESHOLD, PEMKO #255Ax72"• DOOR BOTTOM SEAL, PEMKO #222Avx36" <p>FURNISH AND INSTALL IMPACT RESISTANT GLASS AND SASH TO COMPLY W/ LOCAL STATE CODE REQUIREMENTS.</p>	<p>(5) OFFICE DOOR:</p> <ul style="list-style-type: none">• 1-1/2" PAIR FULL MORTISED STAINLESS STEEL BUTT HINGES (4-1/2"x4-1/2") MCKINNEY MPB91, 630 FINISH• HEAVY DUTY OVERHEAD CLOSER, LCN 1461• LEVER HANDLE WITH KEY OUTSIDE AND PUSH BUTTON INSIDE LOCKSET (ANSI F82/SCHLAGE D50PD LESS CORE, RHODES LEVER 626, BEST CORE W/ 626 FINISH, KEY SHALL BE SEPARATE FROM ALL OTHER LOCKS• 12"x34" STAINLESS STEEL KICK PLATE (BOTH SIDES)• FLOOR STOP, TRIMCO 1211 DOME STOP, 626 FINISH• 12"x36"x¼" TEMPERED VISION PANEL
<p>(3) RESTROOM DOORS:</p> <ul style="list-style-type: none">• 1-1/2" PAIR FULL MORTISED STAINLESS STEEL BUTT HINGES (4-1/2"x4-1/2") MCKINNEY MPB91, 630 FINISH• HEAVY DUTY OVERHEAD CLOSER, LCN 1461• LEVER HANDLE WITH KEY OUTSIDE AND PUSH BUTTON INSIDE LOCKSET (ANSI F82/SCHLAGE ND50PD LESS CORE, RHODES LEVER 626, BEST CORE W/ 626 FINISH• FALCON OCCUPANCY INDICATOR DEADBOLT D271, 626 FINISH• 12"x34" STAINLESS STEEL KICK PLATE (BOTH SIDES)• FLOOR STOP, TRIMCO 1211 DOME STOP, 626 FINISH	

- 1 TEMPERED VISION PANEL
- 2 AIR CURTAIN, REFER TO SHEET A2.3
AND MECHANICAL PLANS

04300 – CAST-IN-PLACE CONCRETE, PART 3 – EXECUTION (CONTINUED)

1. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of (f) 20 (floor finishes) and (f) 17 (floor levels) measured according to ASTM E 1155. Grind smooth any surface defects that would telegraph through applied floor covering system.

- D. Trowel and fine broom finish: where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scuffing the surface with a fine broom.

- E. Non-slip broom finish: apply a non-slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11.1 MISCELLANEOUS CONCRETE ITEMS

- A. Filling in: fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown. Do not fill openings of other trades in place. Mix, place and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

- B. Equipment bases and foundations: provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.12 CONCRETE CURING AND PROTECTION

- A. General: protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and final floating, but before power floating and troweling.

- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

- C. Curing methods: cure concrete by curing compound, by moist curing, by moisture-retaining cover, or by combining these methods, as specified below.
1. Curing compound: apply on exposed interior slabs and on exterior slabs, walks, and curbs as follows:

- a. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Record areas of coating to heavy rainfall within 3 hours after initial application. Maintain continuity of sealed and repair damage during curing period.
- b. Use membrane type curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

2. Moisture curing: one of the following methods:

- a. Use continuous water-fog spray.
- b. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4-inch lap over adjacent absorptive cover.
3. Moisture-retaining cover curing: cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

- D. Chemically-hardened exposed concrete slabs: apply concrete hardener only to moisture-cured concrete slabs. Do not apply on uncured slabs, colored concrete, or over membrane-cured slabs. After slabs are a minimum of 10-days old, spray apply or pour hardener evenly to slabs with squeegee. Puddles of excess hardener should be mopped up.

- E. Curing forms: cured forms: concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

- F. Curing unformed surfaces: cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.

1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

3.13 REMOVING FORMS

- A. General: formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing of not less than 50 Deg F (10 Deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to be removed by form-removal operations and provided curing and protection operations are maintained.

- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements may not be removed in less than 14 days or until concrete has attained at least 75 percent of minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field cured specimens representative of concrete location or members.

- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

3.14 CONCRETE SURFACE REPAIRS

- A. Patching defective areas: repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to Architect.

- B. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a no. 16 mesh sieve, using only enough water as required for handling and placing.

1. Cut out honeycombs, rock pockets, voids over 1/4 inch in any dimension, and holes left by the rods and bolts down to solid concrete with no case to a depth less than 1 inch. Mix edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
2. For surfaces exposed to wet, blend white portland cement and standard portland cement so, when dry, patching mortar will match surrounding color. Provide test areas on inconspicuous locations to verify mortar and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

- C. Repairing unformed surfaces: test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.

1. Repair finished surfaces containing defects that affect the concrete's durability, surface appearance, including crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Architect.
4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching mortar and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

- D. Repair isolated random cracks and single holes 1 inch or less in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Place dry-pack before bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

3.15 QUALITY CONTROL TESTING DURING CONSTRUCTION

- Q. General: the Contractor will employ the geotechnical engineer or record to perform tests and to submit test reports.

- R. Sampling and testing for quality control during concrete placement may include the following, as directed by Architect.

1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete, additional tests when concrete consistency seems to have changed.
2. Air content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
3. Concrete temperature: ASTM C 1064; one test hourly when air temperature is 40 Deg F (4 Deg C) and below, when 80 Deg F (27 Deg C) and above, and one test for each set of compressive-strength specimens.
4. Compression test specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
5. Compressive-strength tests: ASTM C 39; one set for each day's pour exceeding 5 cu yd. Plus additional tests for more than 50 cu yd. More than 20 cu yd. Of each concrete class placed in any one day, one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
6. Masonry fill concrete: ASTM C 1037 in accordance with ACI 530.1 specifications for masonry structures.

- S. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

- T. When total quantity of a given class of concrete is less than 50 cu yd., Architect may waive strength testing if adequate evidence of satisfactory strength is provided.

- U. When strength of field-cured cylinders is less than 85 percent of comparison laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing in in-place concrete.

- V. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 PSI.

- W. Test results will be reported in writing to Architect, structural engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

- X. Nondestructive testing: impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

- Y. Additional tests: the testing agency may make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by core complying with ASTM C 42, or by other methods as directed.

END OF SECTION

04200 – UNIT MASONRY

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes the following:

1. Concrete unit masonry.

1.02 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops the following installed compressive strengths (f'm):

1. For concrete unit masonry: as follows: f'm = 1900 PSI.

1.03 SUBMITTALS

- A. General: submit the following in accordance with conditions of contract and Division 1 Specification sections.

- B. Product data for each different masonry unit, accessory, and other manufactured product indicated, including specified strength requirements.

- C. Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 details and detailing of concrete reinforcing showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.

- D. Samples for initial selection purposes of the following:

1. Unit masonry samples in small-scale form showing full extent of colors and textures available for each different exposed masonry unit required.

- E. Material certificates for the following signed by manufacturer and Contractor certifying that each material complies with requirements:

1. Each different cement product required for mortar and grout including name of manufacturer, brand type, and weight slips at time of delivery.
2. Each material and grade indicated for reinforcing bars.
3. Each type and size of joint reinforcement.
4. Each type and size of anchors, ties, and metal accessories.
- F. Material test reports from a qualified independent testing laboratory employed and paid by Contractor indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:

1. Mortar complying with property requirements of ASTM C 270.
2. Grout mixes, include description of type and proportions of grout ingredients. See concrete specifications for masonry grout.
3. Masonry units.

- G. Cold-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.

- H. Hot-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.

- I. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, telephone numbers, names of Architects and Owners, and other information specified. K. Results from tests and inspections performed by Owner's representatives will be reported promptly and in writing to Architect and Contractor.

1.04 QUALITY ASSURANCE

- A. Unit masonry standard: comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures," except as otherwise indicated.

1. Revise ACI 530.1/ASCE 6 to exclude sections and articles 15.1.2, 15.1.3, and to modify article 21.1.1.4 by deleting requirement for installing vent pipes and conduits built into masonry.

- B. Inspecting laboratory qualifications: to qualify for employment in performing tests and inspection specified in this section, an independent testing laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM C 1093, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the work.

1.05 PROJECT CONDITIONS

- A. Protection of masonry: during erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
2. Where one with of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

- B. Stain prevention: prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Remove immediately any grout, mortar, and soil that come in contact with such surfaces.

1. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with pointed and integral finishes from mortar droppings.

- C. Cold-weather construction: comply with referenced unit masonry standard for cold-weather construction and the following:

1. Do not lay masonry units that are wet or frozen.
2. Remove masonry damaged by freezing conditions.

- D. Hot-weather construction: comply with referenced unit masonry standard.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

- A. Comply with referenced unit masonry standard and other requirements specified in this section applicable to each material indicated.

2.02 CONCRETE MASONRY UNITS

- A. General: comply with requirements indicated below applicable to each form of concrete masonry unit required.

1. Provide special shapes where indicated and as follows:
- a. For lintels, corners, jambs, shot, control joints, headers, bonding, and other special conditions.
- b. Bulnose units for outside corners unless otherwise indicated.
- c. Square-edged units for outside corners, except where indicated as bullnose.
2. Size: provide concrete masonry units complying with requirements indicated below for size that are manufactured to specified face dimensions within tolerances specified in the applicable referenced ASTM specification concrete masonry units.
3. Concrete masonry units: manufactured to specified dimensions of 3/8 inch less than nominal widths by nominal heights by nominal lengths indicated on Drawings.
4. Provide Type I, non-moisture-controlled units.

- B. Hollow load-bearing concrete masonry units: ASTM C 90, Grade N, and as follows:

1. Unit compressive strengths: provide units with minimum average net area compressive strength indicated below:

- a. 1900 PSI.

2.03 MORTAR AND GROUT MATERIALS

- A. Portland cement: ASTM C 150, type I or I, except type III may be used for cold-weather construction. Provide natural color or white cement as required to produce required mortar color.

- B. Masonry cement: ASTM C 91.

1. For colored pigmented mortars use premixed colored masonry cements of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations.
2. For colored aggregate mortars use masonry cement of natural color or white as required to produce mortar color indicated.

- C. Ready-mixed mortar: cementitious materials, water, and aggregate complying with requirements specified in this article, combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASC 1142.

- D. Hydrated lime: ASTM C 207, type 1.

- E. Aggregate for mortar: ASTM C 144, except for joints less than 1/4 inch use aggregate graded with 100 percent passing the no. 16 sieve.

1. White mortar aggregates: natural white sand or ground white stone.

- F. Aggregate for grout: ASTM C 404.

- G. Water: clean and potable.

- H. Compressive strength of mortar and grout: 2500 psi minimum or as indicated on structural drawings.

2.04 REINFORCING STEEL (Refer to Structural Drawings)

- A. General: provide reinforcing steel complying with requirements of referenced unit masonry standard and this article.

- B. Steel reinforcing bars: material and grade as follows:

1. Billet steel complying with ASTM A 615, grade 60.

- C. Deformed reinforcing wire: ASTM A 496.

- D. Plain welded wire fabric: ASTM A 185.

- A. General: provide joint reinforcement complying with requirements of referenced unit masonry standard and this article, formed from the following:

1. Galvanized carbon steel wire, coating class as required by referenced unit masonry standard for application indicated.

- B. Description: welded-wire units prefabricated with deformed continuous side rods and plain cross rods in straight lengths of not less than 10 feet, with prefabricated corner and tee units, and complying with requirements indicated below:

1. Wire diameter for side rods: 0.1483 inch (9 gauge).
2. Wire diameter for cross rods: 0.1483 inch (9 gauge).
3. For single-wythe masonry provide type as follows with single pair of side rods:
- a. Ladder design with perpendicular cross rods spaced not more than 16 inches o.c.
- b. Truss design with continuous diagonal cross rods spaced not more than 16 inches o.c.

- C. Available manufacturers: subject to compliance with requirements, manufacturers offering joint reinforcement that may be incorporated in the work include, but are not limited to, the following:

1. AA Wire Products Co.
2. Dur-o-way, Inc.
3. Hedman Building Products, Inc.
4. Hohmann & Barnard, Inc.
5. Masonry Reinforcing Corp. of America.
6. National Wire Products Industries.
7. Southern Construction Products, Inc.

2.06 TIES AND ANCHORS, GENERAL

- A. General: provide ties and anchors specified in subsequent articles that comply with requirements for metal and size of referenced unit masonry standard and of this article.

- B. Galvanized carbon steel wire: ASTM A 82, coating class as required by referenced unit masonry standard for application indicated.

- C. Steel plates and bars: ASTM A 36, shop pointed with 2 coats of coal-tar-epoxy-polyamide joint complying with SSPC-Paint-16 to comply with SSPC-PA1 "Paint Application Specification No. 1" and SSPC-SP6 "Commercial Blast Cleaning" for surface preparation.

- D. Steel plates and bars: ASTM A 36, hot-dip galvanized to comply with ASTM A 123 or ASTM A 153, for each different exposed masonry unit required.

- E. Stainless steel plates and bars: ASTM A 666, Type 304, temper as required to support loads imposed without exceeding allowable design stresses.

- F. Wall ties: rectangular or z-shaped fabricated of 3/16" steel wire. Length to extend across wythe to within 1/2" of face of masonry in which ties are placed.

- G. Available manufacturers: subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

1. AA Wire Products Co.
2. Dur-o-way, Inc.
3. Hedman Building Products, Inc.
4. Hohmann & Barnard, Inc.
5. Masonry Reinforcing Corp. of America.
6. National Wire Products Industries.
7. Southern Construction Products, Inc.

2.07 POST-INSTALLED ANCHORS

- A. Anchors as described below, with capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing laboratory.

1. Type: expansion anchors (sleeve anchors).
2. Corrosion protection: carbon steel components zinc-plated to comply with ASTM B 633, Class FE/ZN 5 for class SC 1 service condition (mild). Use stainless steel anchors for exterior applications.
3. For cast-in-place and post-installed anchors in concrete: capability to sustain, without failure, a load equal to 4 times loads imposed by masonry.

2.08 MASONRY CLEANERS

- A. Job-mixed detergent solution: solution of trisodium phosphate (1/2-cup dry measure) and laundry detergent (1/2-cup dry measure) dissolved in one gallon of water.

- B. Job-mixed muriatic solution: solution of 1 part muriatic acid and 10 parts clean water, mixed in a nonmetallic container with acid added to water.

- C. Proprietary acidic cleaner: manufacturer's standard-strength, general-purpose cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry surfaces of types indicated below without discoloring or damaging masonry surfaces; expressly approved for intended use by manufacturer of masonry units being cleaned:

1. For masonry subject to metallic oxidation stains, use formulation consisting of a concentrated blend of surface-acting acids, chelating, and wetting agents.
2. For dry colored masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of surface-acting acids and special inhibitors.
3. For masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of organic and inorganic acids and special inhibitors.
4. Available products: subject to compliance with requirements, a product that may be used to clean unit masonry surfaces includes, but is not limited to, the following:
- a. "Sure Kleen No. 600 Detergent," Prosoco, Inc.
- b. "Sure Kleen No. 101 Lime Solvent," Prosoco, Inc.
- c. "Sure Kleen Vano Tral," Prosoco, Inc.

2.09 MORTAR AND GROUT MIXES

- A. General: do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
1. Do not use calcium chloride in mortar or grout.

- B. Mortar for unit masonry: Type S, complying with ASTM C 270, proportion specification.

- C. Mortar for unit masonry: comply with ASTM C 270, proportion specification for job-mixed mortar and ASTM C 1142 for ready-mixed mortar, of types indicated below.

1. Limit cementitious materials in mortar to Portland cement-lime.
2. For all masonry unless otherwise indicated.

- D. Grout for unit masonry: see concrete specifications.

2.10 SOURCE QUALITY CONTROL

- A. Concrete masonry unit tests: for each type, class, and grade of concrete masonry unit indicated, units will be tested by qualified independent testing laboratory for strength, absorption, and moisture content per ASTM C 140.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine conditions, with installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.
1. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of unit masonry.

- B. Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.

- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

- A. Comply with referenced unit masonry standard and other requirements indicated applicable to each type of installation included in project.

- B. Thickness: build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.

- C. Leave openings for equipment to be installed before completion of masonry. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.

- D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required by irregular pattern and to fit adjoining construction. Use full-size units without cutting where possible.

3.03 CONSTRUCTION TOLERANCES

- A. Comply with construction tolerances of referenced unit masonry standard.

3.04 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate location of openings, movement-type joints, returns, and offsets. Avoid the use of less than half-size units at corners, jambs, and where possible at other locations.

- B. Lay up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.

- C. Bond pattern for exposed masonry: lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

1. One-half running bond with vertical joint in each course centered on units in courses above and below.

- D. Lay concealed masonry with all units in a wythe in running bond. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

- E. Stopping and resuming work: in each course, rake back 1/2-unit length for one-half running bond or 1/3-unit length for one-third running bond, do not touch. Clean exposed surfaces of set masonry, wet clay masonry units lightly (if required), and remove loose masonry units and mortar prior to laying fresh masonry.

- F. Built-in work: as construction progresses, build-in items specified under this and other sections of the Specifications. Fit in solidly with masonry built-in items.

1. Where built-in items are to be embedded in cores of hollow masonry "T" units, place a layer of metal lath below specified compression strength by more than 500 PSI.
2. Fill cores in hollow concrete masonry units with grout 3 courses (24 inches) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.05 MORTAR BEDDING AND JOINTING

- A. Lay hollow concrete masonry units as follows:

1. With full mortar coverage on horizontal and vertical face shells.
2. Bed walls in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
3. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.

- B. Cut joints flush for masonry walls to be concealed or to be covered by other materials, unless otherwise indicated.

- C. Mortar joints: tooled concave joints.

3.06 HORIZONTAL JOINT REINFORCEMENT

- A. General: provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcing a minimum of 6 inches.

- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

- C. Provide continuity at corners and wall intersections by use of prefabricated "T" and "Y" sections. Cut and bend reinforcement units as directed by manufacturer for continuity of returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.07 MOVEMENT (CONTROL AND EXPANSION) JOINTS

- A. General: install control and expansion joints in unit masonry where indicated. Built in related items as the masonry progresses. Do not form a continuous span between movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.

- B. Form control joints in concrete masonry as follows:

1. Fit bond breaker strips into hollow contour in ends of block units on one side of control joint. Fill with resalable mortar and seal with wet sand and roller joints in exposed faces.
2. Install prefabricated control joint gaskets designed to fit standard sash block.
3. Install special shapes designed for control joints. Install bond breaker strips at joint. Keep head joints free and clear of mortar or rock joint

06100 – ROUGH CARPENTRY, PART 1 – GENERAL (CONTINUED)

A. Single-source responsibility for engineered wood products: obtain each type of engineered wood products from one source from a single manufacturer.

B. Testing laboratory qualifications: to qualify for acceptance, an independent testing laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the work.

PART 2 – PRODUCTS

2.01 LUMBER, GENERAL

A. Lumber standards: furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standards" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) board of review.

B. Inspection agencies: inspection agencies and the abbreviations used to reference them with lumber grades and species indicated are the following:

- 1. WCLB – West Coast Lumber Inspection Bureau.
- 2. WMPA – Western Wood Products Association.

C. Grade stamps: provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber finish pieces with grade stamps applied to ends or back of each piece; cut end grade stamps entirely and provide certificates of grade compliance issued by inspection agency.

D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.

E. Provide dressed lumber, S4S, unless otherwise indicated.

F. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

2.02 DIMENSION LUMBER

A. For light, non-load bearing, framing provide "stud," "no. 3," or "standard" grade lumber for stud framing (2 to 4 inches thick, 2 to 4 inches wide, 10 feet and shorter) and "stud" or "no. 3" grade for other light framing (2 to 4 inches thick, 2 to 6 inches wide), any species.

B. For structural light framing (2 to 4 inches thick, 2 to 4 inches wide), provide the following grade and species:

- 1. "No. 2" grade.
- 2. Some species are indicated for structural framing grade below.

C. For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:

- 1. "No. 2" grade.
- 2. Douglas Fir graded under WMPA rules, or approved equal of the same properties as indicated below.
- 3. Any species and grade that complies with the following requirements for species group as defined in table 8.1a of N.F.P.A. national design specification, for extreme fiber stress in bending "F_b" for single and repetitive members, and for modulus of elasticity "E":
 - a. Group I species, "F_b" of 500 PSI and "E" of 180 PSI.

D. For exposed framing lumber provide material complying with the following requirements:

1. Definition: exposed framing refers to dimension lumber that is not concealed by other construction and is indicated as finished, nailed, blocked, girding, and similar systems in construction and grading rules.
2. Grading: material hand-selected at factory from lumber of species and grade indicated below that complies with "Appearance" grade requirements of ALSC national grading rule; issue inspection certificate of inspection agency for selected material.
3. Interior exposed framing: no. 2 hemfir graded under WMPA rules.
4. Exterior exposed framing: no. 1 western red cedar.

2.03 MISCELLANEOUS LUMBER

A. Provide lumber for support or attachment of other construction including roof/equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

D. Grade: "standard" grade light-framing-size lumber of any species or board-size lumber as required. "No. 3 common" or "standard" grade boards per WCLB or WMPA rules or "No. 2 boards" per WMPA rules.

2.04 ENGINEERED WOOD PRODUCTS

A. Provide engineered wood products for which current model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance for the application indicated with specified requirements and the building code in effect for this project.

B. Laminated veneer lumber: lumber manufactured by laminating wood veneers in a continuous press using an exterior-type adhesives complying with ASTM D 2559 to produce members with grain of veneers parallel with their lengths and complying with the following requirements:

- 1. Veneer characteristics: Douglas Fir or Southern Pine veneers of varying thickness by widths and lengths standard with manufacturer, and-glued with a top-joint, butt joint, or scarf joint.
- 2. Allowable design stresses: as follows, determined from empirical data or by rational engineering analysis, and demonstrated by comprehensive testing performed by a qualified independent testing laboratory.
 - 3. Extreme fiber stress in bending (F_b): 2800 PSI (for 1½-inch deep members).
 - 4. Modulus of elasticity (E): 2,000,000 PSI
 - 5. Tension parallel to grain (F_t): 1850 PSI
 - 6. Compression parallel to grain (F_c): 2700 PSI
 - 7. Compression perpendicular to grain: 400 PSI and 500 PSI perpendicular and parallel to glue line.
 - 8. Horizontal shear (F_v): 285 PSI and 190 PSI perpendicular and parallel to glue line.
 - 9. Sizes: 1–3/4 inches thick by depth and length indicated.
 - 10. Sizes: as indicated.

C. Available products: subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:

- 1. Laminated Veneer Lumber, (LVL), headers and beams,"
 - a. Micro – Lam, Truss Joist McMillen
 - b. GP Lam, Georgia Pacific
 - c. Gang Lam, Louisiana Pacific

2.05 CONSTRUCTION PANELS, GENERAL

A. Construction panel standards: comply with PS 1 U.S. Product Standards for Construction and Industrial Plywood" for plywood construction panels, and for products not manufactured under PS 1 provisions, furnish construction panels that are each factory-marked with APA trademark evidencing compliance with grade requirements.

2.06 CONSTRUCTION PANELS, SPECIFIC

A. Provide APA performance-rated panels complying with requirements designated under each application for grade designation, span rating, exposure durability classification, edge detail (where applicable), and thickness where construction panels are indicated for concealed types of applications.

B. Available products: subject to compliance with requirements, air infiltration barriers / water-resistant membranes that may be incorporated in the work include, but are not limited to, the following:

- 1. Wall sheathing: for use as typical wall sheathing, provide (ash) oriented strand board with grade designation, APA rated sheathing exterior, in thickness indicated, or, if not otherwise indicated, not less than 5/8" nominal thickness.
- 2. Wall sheathing: for use as shear wall sheathing, provide plywood panels with grade designation, APA rated structural I-rated sheathing exterior, in thickness indicated, or, if not otherwise indicated, not less than 5/8" nominal thickness.
- 3. Roof sheathing: for use as roof decking, provide plywood panels with grade designation, APA stud–in-floor exterior, tongue and groove, sized for span, in thickness indicated, or, if not otherwise indicated, not less than 5/8" nominal thickness.

A. Plywood blocking panels: for kitchen shelving, provide plywood panels with grade designation, APA C-D plugged exposure exterior, in thickness indicated, or, if not otherwise indicated, not less than 5/8" nominal thickness.

B. Electrical blocking panels: for mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with grade designation, APA C-D plugged Exposure 1, in thickness indicated, or, if not otherwise indicated, not less than 1/2" nominal thickness.

C. Milwork panels: for all interior finish milwork, provide hardwood plywood panels with grade designation, APA A Exposure 1, in thickness indicated on construction documents, but in no case less than 5/8" nominal thickness.

2.07 AIR INFILTRATION BARRIER / WATER-RESISTANT MEMBRANE

A. Woven polyolefin sheet, 0.005 inch thick, with a moisture vapor transmission rate of 70 grams/sq. Meter/24 hours per ASTM E 96, procedure and a flame spread rating not exceeding 25 per ASTM E 84.

B. Available products: subject to compliance with requirements, air infiltration barriers / water-resistant membranes that may be incorporated in the work include, but are not limited to, the following:

- 1. "BarriCore Building Wrap," Simpler Products Division, Anthony Industries, Inc.
- 2. Tyvek Housewrap," Fibers Department, du Pont Company.

2.08 FASTENERS

A. Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

B. Provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel, where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.

C. Nails, wire and brods: FS FF–N–105.

D. Power driven fasteners: national evaluation report NER–272.

E. Wood screws: ANSI B18.6.1.

F. Lag bolts: ANSI B18.2.1.

G. Bolts: steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers galvanize for exterior applications.

2.09 METAL FRAMING ANCHORS

A. General: provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:

- 1. Current evaluation/research reports: provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance conforming to model code evaluation/research reports for application indicated with the building code in effect for this project.
- 2. Allowable design loads: provide products for which manufacturer publishes allowable design loads that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.

B. Galvanized steel sheet: steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for coating designation G60 and with ASTM A 446, Grade A (structural quality), ASTM A 526 (commercial quality), or ASTM A 527 (lock-forming quality), as standard with manufacturer for type of anchor indicated.

C. Use galvanized steel framing anchors and bolts for rough carpentry exposed to weather, in ground contact, or in area of high relative humidity, and where indicated.

D. Acceptable manufacturer: Simpson Strong-Tie Company.

2.10 MISCELLANEOUS MATERIALS

A. Adhesives for field gluing panels to framing: formulation complying with APA AFG–01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturer.

2.11 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

A. Comply with applicable requirements of AWWA Standards C2 (lumber) and C9 (plywood) where lumber or plywood is indicated as preservative-treated wood or is specified herein to be treated. Mark each treated item with the WPA or SPB quality mark requirements.

B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf for interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:

C. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in contact with roofing, flashing, vapor barriers, and wood waterproofing.

D. Wood nail sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

E. Wood framing members less than 8 inches above grade.

F. Wood floor plates installed over concrete slabs directly in contact with earth.

G. Pressure-treat wood members in contact with the ground or fresh water with water-borne preservatives to a minimum retention of 0.40 pcf.

H. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWWA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.

C. Fit rough carpentry to other construction; scribe and score as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

E. Countersink nail heads on exposed carpentry work and fill holes.

F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Use galvanized nails and screws for all exterior exposed framing. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish members make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work; form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

B. Attach to substrates as required to support applied loading. Countersink nails and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

C. Install permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1–1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

3.03 WOOD FRAMING, GENERAL

A. Framing standard: comply with N.F.P.A. "Manual for Wood Frame Construction," unless otherwise indicated.

B. Framing with engineered wood products: install framing composed of engineered wood products to comply with manufacturer's directions.

C. Install framing members of size and spacing indicated.

D. Anchor and nail as shown, and to comply with the following:

- 1. National evaluation report no. NER–272 for pneumatic or mechanical driven staples, P–nails, and allied fasteners.
- 2. Published requirements of manufacturer of metal framing anchors.
- 3. "Recommended nailing schedule" of referenced framing standard and with N.F.P.A. "National Design Specifications for Wood Construction."
- 4. Table 2304.10.1 – Fastening Schedule of the International Building Code.
- 5. Table 2305.2 (2) – Allowable Shear for Wood Structural Panel Blocked Diagrams of the International Building Code.
- 6. Table 2306.3 (1) – Allowable Shear for Wood Structural Panel Shear Walls of the International Building Code.

E. Do not splice structural members between supports.

F. Firestop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling line of the top story. Where firestops are not automatically provided by the framing members, use closely fitted wood blocks of nominal 2–inch-thick lumber of the same width as framing members.

3.04 STUD FRAMING

A. Arrange studs so that wide face of stud is perpendicular to direction of wall or partition and narrow face is parallel single bottom plate and double top plates using 2–inch-thick members whose widths equal that of studs; except single top plate may be used for non-load-bearing partitions. Nail or anchor plates to supporting construction.

1. For exterior walls and load-bearing structural walls install 2–inch by 6–inch wood studs spaced 16 inches o.c.

2. For interior partitions and walls install 2–inch by 4–inch or 2–inch by 6–inch wood studs spaced 16 inches o.c., as indicated.

B. Construct corners and intersections with not less than 3 studs. Install miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items, and trim.

C. Frame openings with multiple studs and headers. Install nailed header members of thickness equal to width of studs. Set headers on edge and support on jamb studs.

3.05 AIR INFILTRATION BARRIER

A. Cover sheathing with air infiltration barrier as follows:

- 1. Apply plastic sheet to comply with manufacturer's printed directions.
- 2. Apply air infiltration barrier to cover upstanding flashing with 4–inch overlap.

END OF SECTION

06192 – PREFABRICATED WOOD TRUSSES (Refer also to Structural Drawings)

PART 1 – GENERAL

1.01 REQUIREMENTS

A. General: furnish and install open-web trusses consisting of wooden top and bottom chords and tubular steel web members as indicated on the Drawings and as specified herein, including all truss-to-truss connections, and truss-to-framing connections.

B. Standards: comply with N.F.P.A. "National Design Specification for Wood Construction"

C. Submittals: in addition to product data for truss components submit the following:

- 1. Shop drawings showing sizes, design values, materials, and dimensional relationships of components as well as bearing and anchorage details. Provide shop drawings that have been signed and stamped by a professional engineer legally authorized to practice in jurisdiction where project is located.
- 2. Design calculations for all trusses and truss-to-truss connections that indicate design loadings, allowable stresses, and connection capacities. Calculations shall be signed and stamped by a professional engineer legally authorized to practice in the jurisdiction where project is located.
- 3. Product certificate, signed by officer of fabricating firm, certifying that metal-plate-connected wood trusses supplied for project comply with specified requirements.
- 4. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction evidencing compliance of fire-retardant-treated wood with specified requirements and building code in effect for project.

D. Single-source engineering responsibility: provide trusses engineered by the truss manufacturer to support superimposed dead and live loads indicated with design approved and certified by a professional engineer legally authorized to practice in jurisdiction where project is located.

E. Fabricator's qualifications: a firm that participates in a recognized quality assurance program that insures inspection by SPB, Timber Products Inspection, Inc. or other independent inspection and testing agency acceptable to Architect and authorities having jurisdiction.

F. Handle and store trusses with care to avoid damage from bending, overturning or other cause.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Lumber: provide dressed lumber S4S, grade marked, complying with PS 20 and requirements indicated. Moisture content: seasoned, with 19 percent maximum moisture content at time of dressing and shipment. Any species and grade complying with the following species group as defined in table 8.1a of N.F.P.A. national design specification: Group II species, "F_b" of 1200/1400 PSI for

where determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.

B. Fasteners: of size and type indicated that comply with the following requirements. Where trusses are exposed to weather or to high relative humidity, provide hot-dip zinc-coated fasteners per ASTM A 153 or AISI Type 304 stainless steel fasteners.

- 1. Nails, wire, brods, and staples: FS FF–N–105.
- 2. Power driven fasteners: national evaluation report NER–272.
- 3. Wood screws: ANSI B18.6.1.
- 4. Lag bolts: ANSI B18.2.1.
- 5. Bolts: steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

C. Metal framing anchors: provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:

- 1. Current evaluation/research reports: provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with the building code in effect for this project.
- 2. Allowable design loads: as published by manufacturer and determined from empirical data or by rational engineering analysis and verified through comprehensive testing by a qualified independent testing laboratory.
- 3. Galvanized steel sheet: zinc-coated by hot-dip process to comply with ASTM A 525, coating designation G60, and complying with ASTM A 446, Grade A; ASTM A 526; or ASTM A 527.

2.02 FABRICATION

A. Fabricate and assemble trusses to provide units of configuration indicated, with closely fitted joints and connector pins securely fastened to wood members. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints with wood-to-wood bearing in assembled units. Fabricate metal connector pins to size, configuration, thickness, and anchorage details required to withstand design loadings for types of joint designs indicated. Install trusses in place by means of lifting members or jacks by cut-off, plane bending or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances specified to produce design camber indicated

2.03 INSTALLATION

A. General: erect and brace trusses to comply with applicable requirements of referenced standards. Where trusses do not fit, return them to fabricator and replace with trusses of correct size; do not alter trusses in the field. Erect trusses with plane of truss webs vertical (plumb) and parallel to each other, located accurately at design spacing indicated. Install trusses in place by means of lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by cut-off, plane bending or other causes. Anchor trusses securely at all bearing points to comply with methods and details indicated. Install permanent bracing and related components to enable trusses to maintain design spacing, withstand live and dead loads including lateral loads, and to comply with other indicated requirements. Do not cut or remove truss members.

END OF SECTION

07210 – BUILDING INSULATION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes provisions and procedures governing the furnishing and installation of building insulation indicated, but not limited to, the following:

- 1. Concealed building insulation in batt form.
- 2. Board-type rigid insulation for exterior installation of walk-in freezer
- 3. Board type rigid insulation for below-grade foundation perimeter installation.

B. Roof insulation is specified in Section 07531.

C. Interior Acoustical Insulation is specified in Section 09200.

1.02 DEFINITIONS

A. Thermal resistivity: where the thermal resistivity of insulation products are designated by "R-values," they represent the reciprocal of thermal conductivity (K=values). Thermal conductivity is the rate of heat flow through a homogeneous material exactly 1 inch thick. Thermal resistance is expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.03 SUBMITTALS

A. Product data for each type of insulation product specified.

1.04 QUALITY ASSURANCE

A. Provide insulation materials identified to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL, or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.

1. Surface burning characteristic: ASTM E 84.

2. Fire resistance ratings: ASTM E 119.

3. Combustion characteristics: ASTM E 136.

B. Obtain each type of building insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work

PART 2 – PRODUCTS

2.01 INSULATING MATERIALS, GENERAL

A. Provide insulating materials that comply with specified requirements and with referenced standards.

B. Prefomed units: sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.

C. Foundation perimeter insulation and underside rigid insulation: Extruded polystyrene closed cell, boards of thicknesses indicated, with aged K-value of 0.17, (aged at 50% RH, and 73–deg. F for 180 days), 1½-lb. per cu. ft. minimum density comply with Fed. Spec. HH–1–530, Type I Grade 2.

D. Faced mineral fiber blanket/batt insulation: 6 1/4" R–21 value for wall insulation. Wall insulation to be face faced in areas not covered by gypsum board, all other areas to be kraft paper faced. Line of the top story. Where firestops are not automatically provided by the framing members, use closely fitted wood blocks of nominal 2–inch-thick lumber of the same width as framing members.

E. Mineral fiber type: fibers manufactured from glass or slag.

2.02 PRODUCTS

A. Extruded Polystyrene board insulation: subject to compliance with requirements, provide insulation products of the following manufacturers:

- 1. Dow Corporation
- 2. Atlas Energy Corporation
- 3. Owens/Corning

B. Glass fiber insulation: subject to compliance math requirements, provide insulation products of one of the following manufacturers:

- 1. Certain Teed Corp.
- 2. Owens/Corning Fiberglass Corp.

2.03 ACCESSORIES

A. Corrosion resistant fasteners as recommended by insulation manufacturer for insulation and substrate type.

2.04 VAPOR RETARDERS

A. Polyethylene vapor retarder: ASTM D 4397, 6.0 mils thick, with a maximum permeance rating of 0.13 perms.

B. Tape for vapor retarder: pressure sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

END OF SECTION

07240 – ALUMINUM COMPOSITE METAL PANEL SYSTEM

PART 1 GENERAL

1.1 General

A. This section includes Aluminum faced composite panels with mounting system. Panel mounting system including anchorms, shims, furring, fasteners, gaskets and sealants, related flashing, adapters, and masking (as required) for a complete watertight installation.

1.02 References and standards

A. Aluminum Association Construction Manual – Aluminum sheet metal work and building construction

B. ASTM B 117: Method of salt spray (fog) testing

C. ASTM D 1781: Climbing drum peel test for adhesives

D. ASTM D 3359: Methods for measuring adhesion by tape test.

E. ASTM D 3363: Method for film hardness by pencil test.

F. ASTM D 2794: Resistance of organic coatings to the effects of rapid deformation (Impact)

G. ASTM D 1308: Effect of household chemicals on clear and pigmented organic finishes.

H. ASTM D 2247: Practice for testing water resistance or coatings in 100% relative humidity.

I. ASTM D 1735: Method for water fog testing of organic coatings.

J. ASTM D 1928: Standard test method for determining impact resistance of plastics.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions with installer present, for compliance with requirements of the sections in which substrates and related work are specified and to determine if other conditions affecting performance of installation are satisfactory. Do not proceed with installation of insulation until satisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections that might puncture vapor retarders.

3.03 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's instructions applicable to products and conditions. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.

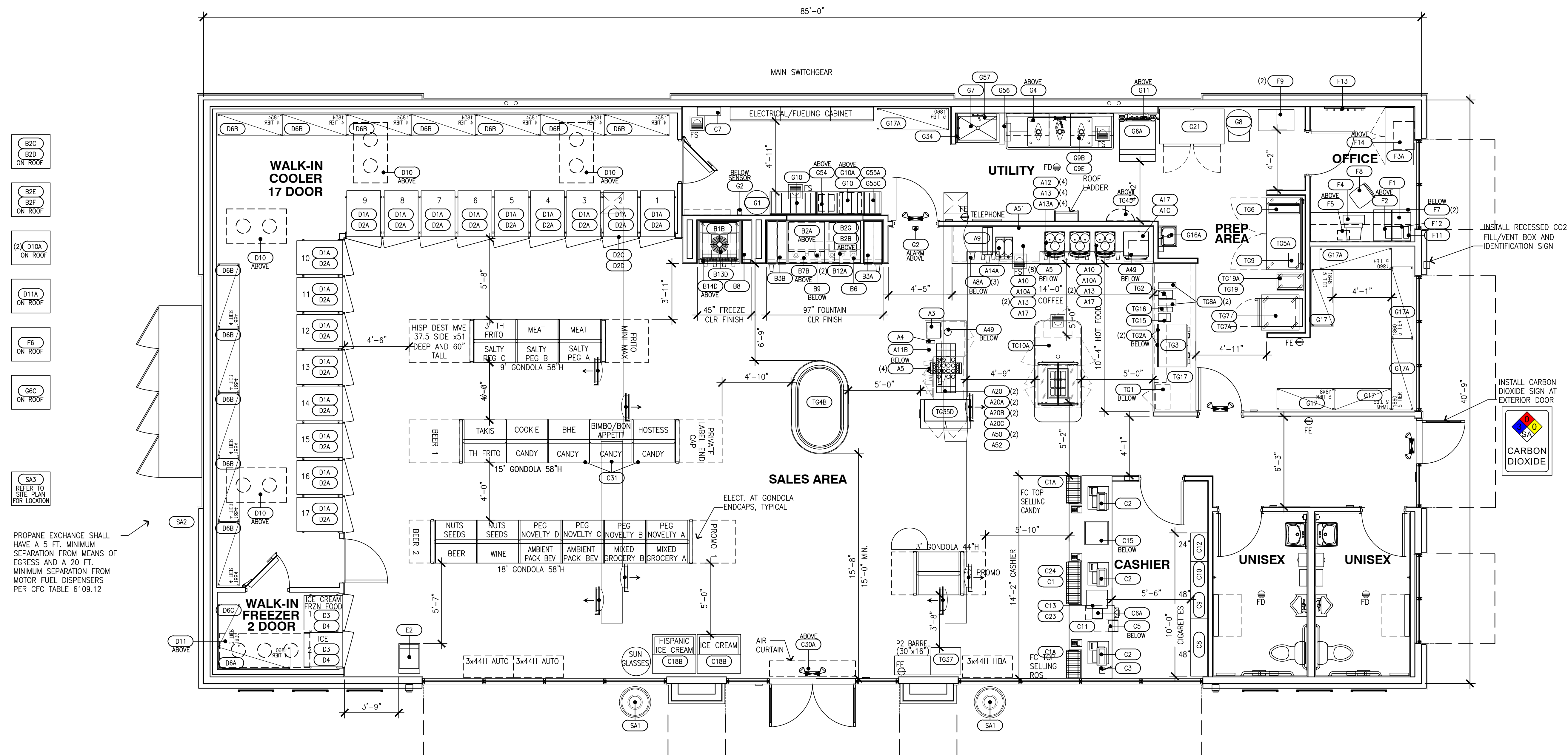
B. Extend insulation full thickness and indicated to envelope entire area to be insulated. Cut and fit tightly around obstructions, fill voids with insulation. Remove projections that interfere with placement.

3.04 UNDERSLAB INSTALLATION



07542 – TPO MEMBRANE ROOFING, PART 1 – GENERAL (CONTINUED)		B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 80 mils thick, minimum, of same color as sheet membrane.		B. Allow top sheet to fall freely into place over bottom ply without wrinkling or stretching.		C. Looped bellows vs width: 5 to 6 inches, exclusive of flanges.		3.03 INSTALLATION OF JOINT SEALERS		manufacturer's data, and as herein specified.	
C. Manufacturer Certificates:		C. Insure that surfaces to be sealed are cleaned, primed and dirt free. Use automatic hot air welding equipment approved by the roof system manufacturer for field seams. Seam small work and repairs with hand welders.		C. Insure that surfaces to be sealed are cleaned, primed and dirt free. Use automatic hot air welding equipment approved by the roof system manufacturer for field seams. Seam small work and repairs with hand welders.		D. Manufacturers: subject to compliance with requirements, provide products by one of the following:		A. Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.		B. Placing frames: comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames," unless otherwise indicated. Install at least 3 wall anchors per jamb at hinge and strike levels. Attach wall anchors to studs with screws.	
1. Material Certificate: Signed by roofing manufacturer certifying that related and new materials and components comply with Project Specifications and that materials furnished are compatible with one another and the adjacent work and are new and first quality.		D. Coated Metal: G90 galvanized steel, TPO coated on one side, color to match roofing membrane, as supplied by the roof system manufacturer, minimum 24 gauge, 0.028-inch for flashed metal details.		1. Install minimum 1-1/2 inch wide weld.		1. AFDO Products, Inc.		1. Elastomeric sealant standard: ASTM C 962.		C. Door installation: fit hollow metal doors accurately in frames, within clearances specified in ANS/SD -100.	
2. System Design Certificate: Signed by roofing manufacturer certifying that roofing system design complies with requirements specified in "Performance Requirements" Article for the geographic location of the Project.		D. Bonding Adhesive: Roofing membrane manufacturer's standard TPO bonding adhesive.		D. Probe laps each day to verify seams are bonded. In addition, perform random lap test sample checks (including checks at start of each day) to verify peel strength. Caulk cut edges by applying manufacturer's seam sealant, if required.		3. International Permalite/Roofing Components Group.		B. Installation of sealant backings: install joint fillers of type indicated to provide support of sealants during application and of position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.		END OF SECTION	
3. Include manufacturer's written approval of project details, materials, fastener pattern for insulation and membrane, and warranty requirements for the specific project substrate and location.		E. Insulation Fastening Plates: Manufacturer's approved corrosion resistant plates as furnished and approved by roof system manufacturer for specific application.		3.08 FLASHING		4. Monville/Roofing Systems Division (EJI-4).		C. Installation of sealants: install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for sealant configurations and providing uniform, cross sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.		08410 – ALUMINUM ENTRANCES AND STOREFRONT	
D. Maintenance Data: Manufacturer's complete recommended maintenance procedures for the roofing system, including precautions and warnings to prevent damage and deterioration to the roof system.		F. Fasteners (Insulation and membrane): Manufacturer's approved #15 heavy duty, self tapping series 300, screws as furnished and/or warranted in writing by roofing system manufacturer.		A. Walls, Parapets, Mechanical Equipment Curbs.		5. York Manufacturing, Inc.		1. For exterior joints: provide appropriate "elastomeric" sealant.		PART 1 – GENERAL	
E. Warranty: Roof manufacturer's Limited Warranty with Product Data Submittal, including evidence of application for warranty.		G. Induction Welding Plates: Firestone Building Products; InvaliWeld plates.		1. Install flashing at roof penetrations, interruptions, and any roof intersection including roof edges with vertical or sloped surfaces in accordance with manufacturer's recommended procedures and Drawings.		2.02 WARRANTY		D. Tooling of nonsag sealants: immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.		1.01 Summary	
F. Manufacturer's Reports:		H. Water Cutoff Mastic: As furnished by membrane manufacturer for this system.		2. Curbs, projections and rseawl conditions require a minimum 8-inch height for base flashings and sleeves.		A. All sheetmetal and flashings to have a 2 year material and workmanship warranty.		1. Provide concave joint configuration per figure 6a in ASTM C 962, unless otherwise indicated.		A. Section Includes: Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.	
1. Manufacturer's pre-installation notice.		I. Inside Corners and Outside Corners and Moided Pipe Flashings: Pre-molded components as furnished by membrane manufacturer for this system.		3. Apply manufacturer's bonding adhesive to both underside of flashing and surface to which it is to be bonded, at a rate of approximately 1 gallon per 50 sq.ft. of surface coverage.		PART 3 – EXECUTION		3.04 CLEANING		B. Related Sections:	
2. Roof manufacturer's review of contract documents and written acceptance of application for warranty.		J. Night Seal: As furnished by membrane manufacturer for this system.		4. Do not apply bonding adhesive to portion of flashing that overlaps onto itself. Use seam tape where membrane overlaps itself.		.001 INSTALLATION REQUIREMENTS		A. Clean off excess sealants and sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.		1. Section 08800 – Glazing	
3. Inspection Reports: At completion of each inspection, two copies of manufacturer's field quality control reports of field inspections, including two copies of warranty shop drawing and manufacturer's final inspection punch list.		K. Other miscellaneous materials shall be manufacturer's best grade available and approved in writing by the roof system manufacturer for the specific application.		5. Allow bonding adhesive to dry to a finger touch until it does not string or stick to a dry finger. Roll the flashing into dry adhesive. Care must be taken to assure that flashing does not bridge where there is any change of direction.		A. Comply with manufacturer's installation instructions and recommendations and with SMACNA "Architectural Sheet Metal Manual" except as otherwise indicated. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; cancel fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weathertight		3.02 SYSTEM PERFORMANCES		1.02 System Description	
G. The Contractor shall submit a letter stating that he has reviewed all conditions of installation and installation details, and that installation is in compliance with manufacturers recommendations. Also that all materials used for the roof installation are acceptable to the roofing manufacturer.		L. Sealants		6. Mechanically fasten top of flashing under or through appropriate counter flashing with approved fasteners as shown on Drawings.		B. Install reglets to receive counter flashing in a manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of Division 4 sections.		A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.		A. Storefront System Performance Requirements:	
1.04 QUALITY ASSURANCE		1. General Construction Details: One-part non-priming gun-grade urethane sealant.		7. Install flashings for vents, pipe, soil vents and other round projections in accordance with manufacturer's recommendations and Drawings.		C. Install counter flashing in reglets, either by snap-in seal arrangement or by welding in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.		END OF SECTION		1. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft² at a static air pressure differential of 6.24 psf.	
A. Installer Qualifications:		2. Roofing Details: Sealants used in contact with roofing system shall be roofing membrane manufacturer's approved sealant used to seal penetrations through the membrane system or miscellaneous sealant applications that come in contact with roofing system.		8. Waterproof and positively secure flashings with termination bar at the top and sides to prevent seepage behind or into the flashing or roofing system.		D. Nail flanges of expansion joint units to curb rails, at maximum spacing of 6 inches o.c. fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof system.		08111 – STANDARD STEEL DOORS AND FRAMES		2. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 8 psf as defined in ANMA 501.	
1. A qualified firm that is approved, authorized, or licensed by the roofing system manufacturer to install the manufacturer's product and that is eligible to receive manufacturer's warranty.		3. Backer Rod: Where required for sealant joints.		B. Other Penetrations:		END OF SECTION		PART 1 GENERAL		3. Uniform Load: A static air design load of 20 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.	
2. When installing roofing membrane utilizing induction welding (Firestone Building Products; InvaliWeld System) installers shall have successfully completed a training course provided by the roofing membrane manufacturer prior to welding.		2.05 ROOF INSULATION		1. Flash penetrations passing through membrane in accordance with the manufacturer's recommended procedure, Specifications and Drawings.		07901 – JOINT SEALANTS		1.01 SUMMARY		1.04 Submittals	
3. Job Superintendent Requirements:		A. Polyisocyanurate Board Insulation: Rigid closed cell polyisocyanurate foam ASTM C 1289, Type II, glass-fiber mat, face or both major surfaces. Manufactured or approved by TPO membrane roofing manufacturer. See Drawings for total insulation thickness or required R-value.		2. Seal flashing directly to the penetration passing through the membrane system.		PART 1 – GENERAL		A. This section includes provisions and procedures governing the furnishing and installation of steel doors, frames, and integral accessories.		A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 – Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract." Quality Assurance/Control Submittals:	
a. Present at the job site at all times when work is being performed.		1. Products:		3. Pipes, Round Supports:		1.01 SUMMARY		B. Doors: seamless, hollow or composite construction standard steel doors.		1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.	
b. Supervise workers as required to ascertain workmanship, progress and adherence to details.		a. Firestone Building Products Company; ISO 95+		a. Flash pipes with pre-molded pipe flashings where their installation is possible.		A. This section includes provisions and procedures governing the furnishing and installation of joint sealers for the following locations:		C. Frames: pressed steel frames and interior glazed panels of welded unit type.		1.05 Warranty	
c. Responsible for schedule and coordination.		b. No substitutions allowed.		b. Where molded pipe flashings cannot be installed, use field fabricated pipe seats.		1. Exterior joints in vertical surfaces		E. Provide factory primed doors and frames to be field painted.		A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.	
d. Authority to make binding commitments upon Contractor at the Project site.		c. Compressive Strength: ASTM D 1621, minimum 20 psi.		c. Pipe Clusters and Unusually Shaped Penetrations: Flash pipe clusters and unusually shaped penetrations which prohibit the installation of field fabricated pipe seats with hooded sheet metal boxes. Provide pipe boxes with solid sheet metal face closures. Slope piping away from the penetration flashings. Provide removable tops.		2. Joint substrate conditions: do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.		1.02 SUBMITTALS		B. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for storefront system as follows:	
B. Pre-Installation Notification		d. Insulation thickness: Insulation shall be built up to the thickness indicated using a minimum of 2 layers with staggered joints.		3.09 WALKWAY INSTALLATION		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANS/SDI-100 and as herein specified.		1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by storefront system manufacturer.	
1. Two weeks prior to commencement of roof installation, contact manufacturer to verify fastener types/frequency and a secured approval of the system design to ensure that the roofing system is registered properly.		e. Minimum Thickness per Layer: 1 inch.		A. General: Do not install flexible walkways within 6 feet of a roof perimeter.		2.02 MATERIALS, GENERAL		1.03 PROJECT CONDITIONS		1.06 Quality Assurance	
2. Form must be completed and submitted to manufacturer to obtain warranty.		f. Tapered insulation where indicated on roof plan. Minimum thickness 1/2 inch, factory sloped at 2 times the roof slope.		B. Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive or seam tape according to roofing system manufacturer's written instructions. Hot air weld perimeters to the field membrane.		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.	
3. Complete the pre-installation notification form (PN) online. Go to manufacturer's website www.firestonebuilding.com/contractors and log into contractor area using contractor license number and password.		3.01 EXAMINATION		C. Submit manufacturer's Letter of Acceptance (refer to attached sample).		B. Joint substrate conditions: do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.		1.02 SYSTEM PERFORMANCES		2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.	
C. Pre-Installation Conference: Conduct conference of Project site.		A. Flexible Walkways: Minimum of 30-inches by 30-inches factory-formed, nonporous, heavy-duty, solid-rubber, slip-resistant, surface-textured walkway pads, approximately 3/16 inch thick as furnished by roofing system manufacturer.		3.11 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.		A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.	
1. Prior to roofing installation, conduct a pre-installation conference at the project site.		2.06 PROTECTION BOARD		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2.01 ACCEPTABLE MANUFACTURERS		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.	
2. Attendance: Contractor, Roofing installer, job superintendent and roof manufacturer's technical representative.		A. Materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.		B. Interior: Water related dirt, debris, droppage, spills, etc.		A. Available manufacturers: subject to compliance with requirements, manufacturers offering standard steel doors and frames which may be incorporated in the work include; but are not limited to, the following:		1.03 PROJECT CONDITIONS		C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.	
3. Agenda:		2.07 WALKWAYS		3.12 CLEANING		1. Arneweld Building Products, Inc.		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		PART 2 – PRODUCTS	
a. Maintaining water tightness of the building during roof installation, including night seal procedures.		A. Flexible Walkways: Minimum of 30-inches by 30-inches factory-formed, nonporous, heavy-duty, solid-rubber, slip-resistant, surface-textured walkway pads, approximately 3/16 inch thick as furnished by roofing system manufacturer.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2. Ceco Corp.		B. Joint substrate conditions: do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.		2.01 ACCEPTABLE MANUFACTURERS	
1.05 DELIVERY AND STORAGE		2.08 PROTECTION BOARD		3.13 CLEANING		3. Steelcraft Manufacturing Co.		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.	
A. All materials provided by the membrane manufacturer shall be delivered with appropriate packaging labels indicating appropriate warnings, storage conditions, lot numbers and usage instructions.		A. Materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2.02 MATERIALS		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.	
B. Materials shall be delivered dry in manufacturer's original, unopened package and be properly stored off the ground on pallets, minimum 4" high and off the roof. Completely cover all material with canvas tarpaulins to prevent the intrusion of water. Plastic covers will not be acceptable.		2.09 FIELD QUALITY CONTROL		3.14 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		1.03 PROJECT CONDITIONS		A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.	
1.06 PROTECTION CONDITIONS		A. Flexible Walkways: Minimum of 30-inches by 30-inches factory-formed, nonporous, heavy-duty, solid-rubber, slip-resistant, surface-textured walkway pads, approximately 3/16 inch thick as furnished by roofing system manufacturer.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.	
A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.		2.06 PROTECTION BOARD		3.15 CLEANING		2.02 MATERIALS, GENERAL		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.	
1.07 WARRANTY		A. Materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		PART 2 – PRODUCTS	
A. Contractor:		2.07 WALKWAYS		3.16 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		1.03 PROJECT CONDITIONS		2.01 ACCEPTABLE MANUFACTURERS	
1. Owner's standard form covering repairs required to correct defects due to faulty materials or workmanship, and to otherwise maintain the roof in a watertight condition and to correct all other defects without regard to watertightness. Any repair shall be done at the expense of the Contractor.		A. Flexible Walkways: Minimum of 30-inches by 30-inches factory-formed, nonporous, heavy-duty, solid-rubber, slip-resistant, surface-textured walkway pads, approximately 3/16 inch thick as furnished by roofing system manufacturer.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2.02 MATERIALS		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.	
2. Warranty Work against the following:		2.08 PROTECTION BOARD		3.17 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.	
a. Leakage of water or moisture through roofing and flashing.		A. Materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2.02 MATERIALS, GENERAL		1.03 PROJECT CONDITIONS		A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.	
b. Leakage of water or moisture inside the building or within the construction.		2.09 FIELD QUALITY CONTROL		3.18 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.	
c. Leakage of roofing material inside or outside the building.		A. Flexible Walkways: Minimum of 30-inches by 30-inches factory-formed, nonporous, heavy-duty, solid-rubber, slip-resistant, surface-textured walkway pads, approximately 3/16 inch thick as furnished by roofing system manufacturer.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2.02 MATERIALS, GENERAL		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.	
d. Blistering, tearing, oiling, and other defects.		2.06 PROTECTION BOARD		3.19 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		1.03 PROJECT CONDITIONS		PART 2 – PRODUCTS	
e. Other objectionable defects.		A. Materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.		A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.		2.02 MATERIALS, GENERAL		A. Joint with conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.		2.01 ACCEPTABLE MANUFACTURERS	
f. Any failure in roofing and flashing causing the roof system to become unserviceable in any manner.		2.07 WALKWAYS		3.20 CLEANING		A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.		B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.		1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.	

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09250 – METAL SUPPORT ASSEMBLIES, PART 3 – EXECUTION (CONTINUED)	C. Fit runners under and above openings; secure intermediate studs at spacing of wall studs.	D. Install studs vertically at 16 inches (400mm) O.C.; unless indicated otherwise on drawings. Install felt strips between wall and stud where studs abut exterior walls.	E. Connect studs to tracks using fastener method.	F. Door opening framing: Install double studs at doorframe jambs. Install stud tracks on each side of opening, at frame head height, and between studs and adjacent studs.	G. Backing and blocking: Provide backing and blocking attached to studs. Bolt or screw steel channels to studs. Install backing and blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, and hardware.	H. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work placed in or behind partition framing.	I. Coordinate erection of studs with requirements of door and window frame supports and attachments.	J. Align stud web openings.	L. Refer to drawings for indication of partitions extending to ceiling only and for partitions extending through ceiling to structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide nested edge leg runners or proprietary slip track.	M. Coordinate placement of insulation in multiple stud spaces made inaccessible after stud framing erection.	3.03 WALL FURRING INSTALLATION	A. Erect wall furring for direct attachment to concrete, brick masonry and concrete walls.	B. Erect furring channels vertically. Secure in place to substrate on alternate channel flanges at maximum 24 inches (600mm).	C. Space furring channels maximum 16 inches (400mm) on centers.	D. Install furring channels directly attached to concrete and brick masonry and concrete walls, as applicable in accordance with manufacturer's instructions.	END OF SECTION	09300 – TILE	PART 1 – GENERAL	1.01 SUMMARY	A. This section includes the following: <ol style="list-style-type: none">1. Wall tile.2. Floor tile.	1.02 SUBMITTALS	A. General: submit the following in accordance with conditions of contract and Division 1 specification sections.	B. Product data for each type of product specified.	C. Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in the substrates and finished tile surfaces. <ol style="list-style-type: none">1. Locate precisely each joint and crack in the substrates by measuring, record measurements on shop drawings, and coordinate them with the joint locations.	D. Samples for initial selection purposes in form of manufacturer's color chart consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.	E. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected. <ol style="list-style-type: none">1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.2. Full size units of each type of trim and accessory for each color required.	F. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and installer.	G. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.	1.03 QUALITY ASSURANCE	A. Single source responsibility for tile: obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.	B. Single source responsibility for setting and grouting materials: obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.	C. Installer qualifications: engage an experienced installer who has successfully completed tile installations similar in material, design, and extent to that required for project.	D. Provide master grade certificate for all materials used.	1.04 PROJECT CONDITIONS	A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.	B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.	C. Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion.	PART 2 – PRODUCTS	2.01 MANUFACTURERS	A. Tile: as listed on Drawings.	B. Mortar bed: thinset bond coat, dry-set cementitious mortar, ANSI A118.1.	C. Sill sealer: latex Portland cement mortar; ANSI A118.4, composition as follows: <ol style="list-style-type: none">1. Latex additive (water emulsion) of type described below, serving as replacement for part or all of grouting water, combined with job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer.2. Latex type: manufacturer's standard.	D. Control joint membrane: use Megal plastic/lastic crack isolation membrane over all control joints and other floor slab gaps over 1/16".	2.02 PRODUCTS, GENERAL	09300 – TILE, PART 2 – PRODUCTS	A. ANSI standard for ceramic tile: comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.	B. ANSI standard for tile installation materials: comply with ANSI standard referenced with products and materials indicated for setting and grouting. <ol style="list-style-type: none">1. Mounting: where factory mounted tile is required, provide back or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.	2.03 TILE PRODUCTS	A. Wall tile: provide flat tile complying with the following requirements: <ol style="list-style-type: none">1. Nominal facial dimensions: as indicated on the drawings.2. Nominal thickness: as indicated on the drawings.3. Face as indicated on the drawings.	B. Trim units: provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements: <ol style="list-style-type: none">1. Size: as indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.2. Shapes: as follows, selected from manufacturer's standard shapes:<ol style="list-style-type: none">a. Base for thinnest mortar installations: cove base with bullnoseb. External corners for thinnest installations: surface bullnose.c. Internal corners: field-buffed square corners, except use covered base and cap angle pieces designed to member with stretcher shapes.	C. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels. <ol style="list-style-type: none">1. Acoustical ceiling units: furnish quantity of full-size units equal to 2.0 percent of amount installed.2. Exposed suspension system components: furnish quantity of each exposed component equal to 2.0 percent of amount installed.	PART 2 – PRODUCTS	2.01 ACOUSTICAL CEILING UNIT	A. Standard for acoustical ceiling units: as scheduled on drawings. Ceiling tile installed in food preparation areas shall be non-water-absorbent and washable.	2.02 METAL SUSPENSION SYSTEMS, GENERAL	A. Standard for metal suspension systems: provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.	B. Finishes and colors: provide manufacturer's standard factory-applied finish for type of system indicated. <ol style="list-style-type: none">1. High humidity finish: comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high humidity finishes are indicated.	C. Attachment devices: size for 5 times the design load indicated in ASTM C 635, Table 1, direct hung unless otherwise indicated.	D. Wire for hangers and ties: ASTM A 641, class 1 zinc coating, soft temper.	1. Gage: provide wire sized so stress at 3 times hanger design load (ASTM C 635, Table 1, direct-hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).	E. Edge moldings and trim: metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.	3. For narrow faced suspension systems, provide suspension system manufacturer's standard edge moldings that match width and configuration of exposed runners.	2.03 MISCELLANEOUS MATERIALS	A. Concealed acoustical sealant: nonshrinking, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division 7 Section "Joint Sealers."	PART 3 – EXECUTION	3.01 EXAMINATION	A. Examine substrates and structural framing to which ceiling system attaches or abuts, with installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.	3.02 PREPARATION	A. Coordination: furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.	B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans.	3.03 INSTALLATION	A. General: install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and USCA "Ceiling Systems Handbook." <ol style="list-style-type: none">1. Standard for installation of ceiling suspension systems: comply with ASTM C 636.	B. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected ceiling plans.	C. Suspend ceiling hangers from building structural members and as follows: <ol style="list-style-type: none">1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplicing, or other equally effective means.2. Where width of ducts and other obstruction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, grescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.4. Do not attach hangers to steel deck tabs.5. Space hangers not more than 4'-0" along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.	D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units. <ol style="list-style-type: none">1. Sealant bed: apply continuous border of acoustical sealant, concealed on back of vertical leg before installing moldings.2. Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.	E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.	3.04 CLEANING	A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.	END OF SECTION	09540 – FIBER REINFORCED PANELS (FRP)	PART 1 – GENERAL	1.01 SUMMARY	A. Section includes application of fiber reinforced plastic (FRP) wall panels, including trim moldings. Extent of FRP wall panels is shown on drawings.	1.02 QUALITY ASSURANCE	A. Fire performance characteristics: provide FRP wall panels, with surface burning characteristics as indicated below, which have been determined by testing assemblies of identical materials and construction according to ASTM E 84 by a testing organization acceptable to authorities having jurisdiction. <ol style="list-style-type: none">1. Flame spread: 25 or less.2. Smoke developed: 450 or less.	1.03 PROJECT CONDITIONS	A. Do not begin installation until spaces to receive FRP wall panels have been enclosed and maintained at approximately the same humidity and temperature conditions as planned for occupancy. Maintain temperature and humidity as recommended by panel manufacturer.	PART 2 – PRODUCTS	2.01 FRP WALL PANELS, GENERAL	B. FRP panels: provide the manufacturer's standard size, USDA approved, mold and mildew resistant, panels, fabricated from fiberglass reinforced plastic, minimum thickness required for UL Class 3 fire-resistance rating, with embossed surface and integral color.	1. Manufacturer: <ol style="list-style-type: none">a. See drawingsb. Or approved equal	B. Accessories: provide the manufacturer's standard color matched high impact resistant PVC moldings	to match panels.	C. Adhesives: provide manufacturer's recommended adhesive, primer, and sealer, produced expressly for use with FRP panels on substrate as shown on drawings. Provide materials which are mildew-resistant and nonstaining.	PART 3 – EXECUTION	3.01 INSTALLATION	A. Install FRP wall panels in locations indicated with vertical surfaces and edges plumb, top edges level, and in alignment with other panels, scribed to fit adjoining work accurately at borders and at penetrations. Comply with panel manufacturer's printed instructions for installation of panels using type of mounting accessories as recommended by manufacturer. <ol style="list-style-type: none">1. Cut units to be at least 50 percent of unit width. Butt joints tightly.	B. Anchor paneling to supporting substrate with adhesive; install spliced-connection strips and similar associated trim to comply with manufacturer's recommendations. Do not face nail unless otherwise indicated.	C. Remove and replace panels which are damaged and are unacceptable to Architect.	END OF SECTION	09650 – RESILIENT FLOORING	PART 1 – GENERAL	1.01 DESCRIPTION	A. This section includes inspection and surface preparation of substrate and installation of resilient floor finish materials.	1.02 SUBMITTALS	A. Submit manufacturer's product data, installation instructions, and maintenance instructions.	B. Submit three 6"x6" samples to Architect or Construction Project manager for color, pattern, and texture confirmation.	1.03 PROJECT/SITE CONDITIONS	A. Store delivered materials in a dry conditioned (minimum 70 F degree) space for a minimum of 48 hours prior to installation. Verify concrete floor slabs are cured and dry, via moisture testing, per manufacturer's directions.	PART 2 – PRODUCTS	2.01 FLOORING MATERIAL	A. Provide flooring material by the manufacturer, in the color, pattern, texture, and sizes as indicated on drawings.	PART 3 – EXECUTION	3.01 EXAMINATION AND PREPARATION OF SUBSTRATE	A. Inspect areas where tile is to be installed. Concrete is to be dry and free of cracks, ridges, paint, curing compounds, drywall compound, dirt, and other foreign deposits whose presence would interfere with installation of flooring.	B. Repair cracks, holes, and depressions with approved trowelable leveling compounds as required.	C. Test concrete substrate for moisture and bond adhesion where required per manufacturer's instructions.	D. Vacuum clean all substrates to be covered with tile immediately before tile installation.	E. Apply slab primer if recommended by flooring manufacturer, prior to applying adhesive.	3.02 INSTALLATION	A. Install tile per manufacturer's instructions. Install tile parallel with axis of room unless otherwise indicated.	B. Install square directional tile using "Quarter Turn" method where each tile is rotated 90 degrees from its adjoining tile, unless otherwise indicated.	C. Adhere tiles to substrate without producing gaps, bumps, telegraphing of substrate, or other visible irregularities in the finished work.	D. Barricade tiled area from foot traffic for duration recommended by manufacturer.	3.03 CLEANING AND PROTECTING	A. Remove visible adhesive and other surface blemishes. Do not wash floor until after interval recommended by manufacturer.	B. Protect flooring against damage from subsequent construction foot traffic.	END OF SECTION	09900 – PAINTING	PART 1 – GENERAL	1.01 SUMMARY	A. This section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces. <ol style="list-style-type: none">1. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.	B. Paint exposed surfaces whether or not colors are designated in the drawings, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.	1. Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.	C. Painting is not allowed on prefabricated items, finished metal surfaces, concealed surfaces, operating parts, and labels.	D. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.	1.02 QUALITY ASSURANCE	A. Single source responsibility: provide primers and undercoat paint produced by the same manufacturer as the finish coats.	B. Coordination of work: review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers. <ol style="list-style-type: none">1. Notify the Architect of problems anticipated using the materials specified.	C. Field samples: on wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full coat finish samples on at least 100 sq. ft. of surface until required sheen, color, and texture are obtained; simulate finished lighting conditions for review of in-place work.	1. Final acceptance of colors will be from job-applied samples.	D. Material quality: provide the manufacturer's best quality trade sale paint material of the various coating types specified. Paint material contains not displaying manufacturer's product identification will not be acceptable.	1.03 PROJECT CONDITIONS	A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).	B. Apply solvent thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).	C. Do not apply paint in rain, fog, or mist, when the relative humidity exceeds 85 percent, at temperatures less than 5 deg F (3 deg C) above the dew point, or to damp or wet surfaces. <ol style="list-style-type: none">1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and "conditioned" within temperature limits specified by the manufacturer during application and drying periods.	PART 2 – PRODUCTS	2.01 MANUFACTURERS	A. Paint manufacturer: See drawings.	B. Stain manufacturer: See drawings.	2.02 PRIMERS	A. Masonry: Alkyd masonry sealer from manufacturer shown on drawings.	B. Wood: Alkyd enamel underbody from manufacturer shown on drawings.	C. Plaster/drywall: Provide from manufacturer shown on drawings.	D. Alkyd-type zinc chromate primer: primers used for priming ferrous metals on the exterior under high-gloss alkyd enamel. <ol style="list-style-type: none">1. Zinc chromate primer	E. Galvanized metal primer: primer used to prime interior and exterior zinc-coated (galvanized) metal surfaces: <ol style="list-style-type: none">1. Galvanized metal latex primer.	2.03 MISCELLANEOUS MATERIALS	A. Paste wood filler: solvent-based, air-drying, paste-type wood filler for use on open-grain wood on interior wood surfaces.	PART 3 – EXECUTION	3.01 EXAMINATION	A. Examine substrate and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected. Start of painting will be construed as the applicator's acceptance of surfaces and conditions within a particular area.	3.02 PREPARATION	A. General procedures: remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.	1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, new painted surfaces.	B. Surface preparation: clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified. <ol style="list-style-type: none">1. Provide barrier coats over incompatible primers or remove and re-prime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.2. Cementitious materials: prepare concrete, concrete masonry block, and cement plaster surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove gloss. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.<ol style="list-style-type: none">a. Use abrasive blast cleaning methods if recommended by the paint manufacturer.b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of oil-paint film, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, and rinse; allow to dry and vacuum before painting.3. Wood: clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sander/paper, as required. Sand surfaces exposed to view smooth and dust off.	A. Cleanup: at the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.	B. Upon completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.	3.06 PROTECTION	A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.	B. Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations. <ol style="list-style-type: none">1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.	3.07 SCHEDULED PAINTING	A. Provide painting as scheduled in architectural drawings.	END OF SECTION	10800 – TOILET ACCESSORIES	PART 1 – GENERAL	1.01 SUMMARY	A. This section includes toilet accessory items scheduled and indicated on the drawings.	1.02 PROJECT CONDITIONS	A. Coordination: Coordinate accessory locations, installation and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning and servicing of toilet accessory items.	PART 2 – PRODUCTS	2.01 ACCEPTABLE MANUFACTURERS	A. Manufacturers: subject to compliance with requirements, toilet accessories are as scheduled and detailed on the Drawings.	2.02 FABRICATION	A. Surface mounted toilet accessories, general: except where otherwise indicated, fabricate units with tight seams at joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.	B. Recessed toilet accessories, general: except where otherwise indicated, fabricate units of oil welded construction, without mitered corners. Hang doors or access panels with full-length stainless steel piano hinges. Provide anchorage that is fully concealed when unit is closed.	C. Framed mirror units, general: fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamper proof glass installation and prevent accumulation of moisture, as follows: <ol style="list-style-type: none">1. Provide galvanized steel backing sheet, not less than 22 gauge (.034 inch) and full mirror size, with non-absorptive filler material. Corrugated cardboard is not an acceptable filler material.	D. Mirror unit hangers: provide system of mounting mirror units that will Pin it rigid, tamper-proof, and theft proof installation, as follows: <ol style="list-style-type: none">1. One-piece galvanized steel wall hanger device with spring action locking mechanism to hold mirror unit in position with no exposed screws or bolts.	PART 3 – EXECUTION	3.01 INSTALLATION	A. Install toilet accessory units in accordance with manufacturers' instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.	B. Secure mirrors to walls in concealed, tamper-proof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, in accordance with manufacturer's instructions for type of substrate involved.	C. Provide backing plates and anchors for grab bars as required by wall construction, to withstand a downward load of at least 250 LBF, complying with ASTM F 446.	3.02 ADJUSTING AND CLEANING	A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.	B. Clean and polish oil exposed surfaces in strict accordance with manufacturer's recommendations after removing temporary labels and protective coating.	3.03 SCHEDULE OF ACCESSORIES	A. Toilet tissue dispenser: Contractor furnished and installed.	B. Soap dispenser: Contractor furnished and installed.	C. Recessed paper towel dispenser and waste receptacle: Contractor furnished and installed.	D. Baby change: Contractor furnished and installed.	END OF SECTION	F. Prime coats: before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.	G. Stipple enamel finish: roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skip marks, or other surface imperfections.	H. Pigmented (opaque) finishes: completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, skips, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.	I. Transparent (clear) finishes: use multiple coats to produce a glass smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections. <ol style="list-style-type: none">1. Provide satin finish for final coats.	J. Completed work: match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.	3.04 FIELD QUALITY CONTROL	A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied: <ol style="list-style-type: none">1. Quantitative materials analysis.2. Abrasion resistance.3. Apparent reflectivity.4. Flexibility.5. Washability.6. Absorption.7. Accelerated weathering.8. Dry opacity.9. Accelerated yellowness.10. Recoating.11. Shining.12. Color retention.13. Alkali and mildew resistance.	D. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are noncomparable.	CLIENT:			BP WEST COAST PRODUCTS, LLC		Barghausen Consulting Engineers, Inc.	18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com	NO.	DATE	REVISION	DESCRIPTION																																																										
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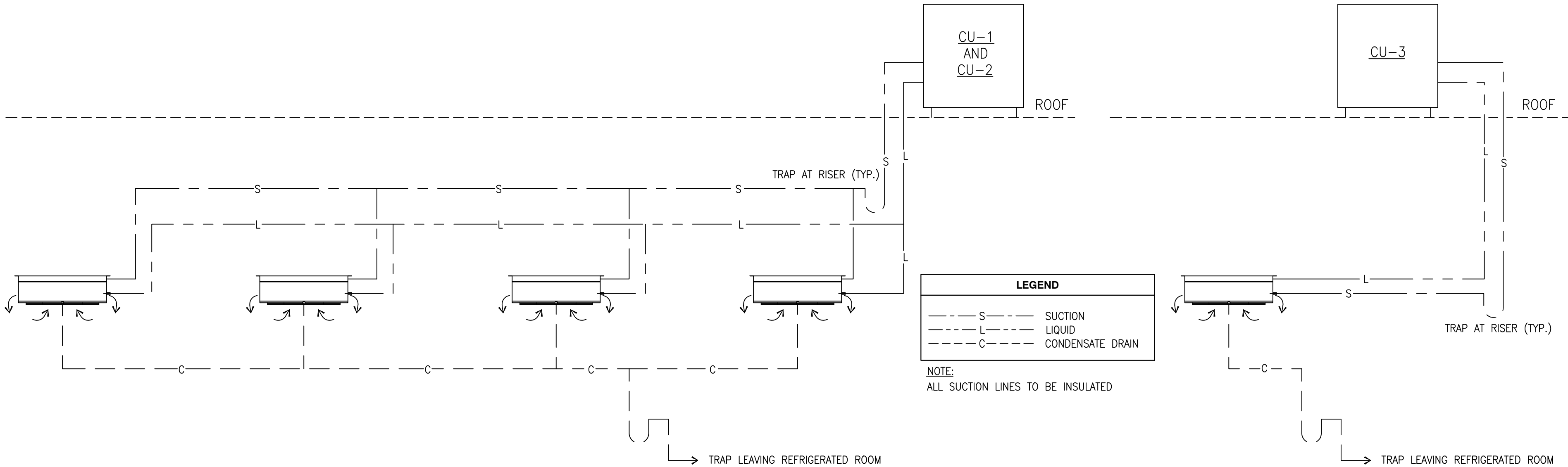


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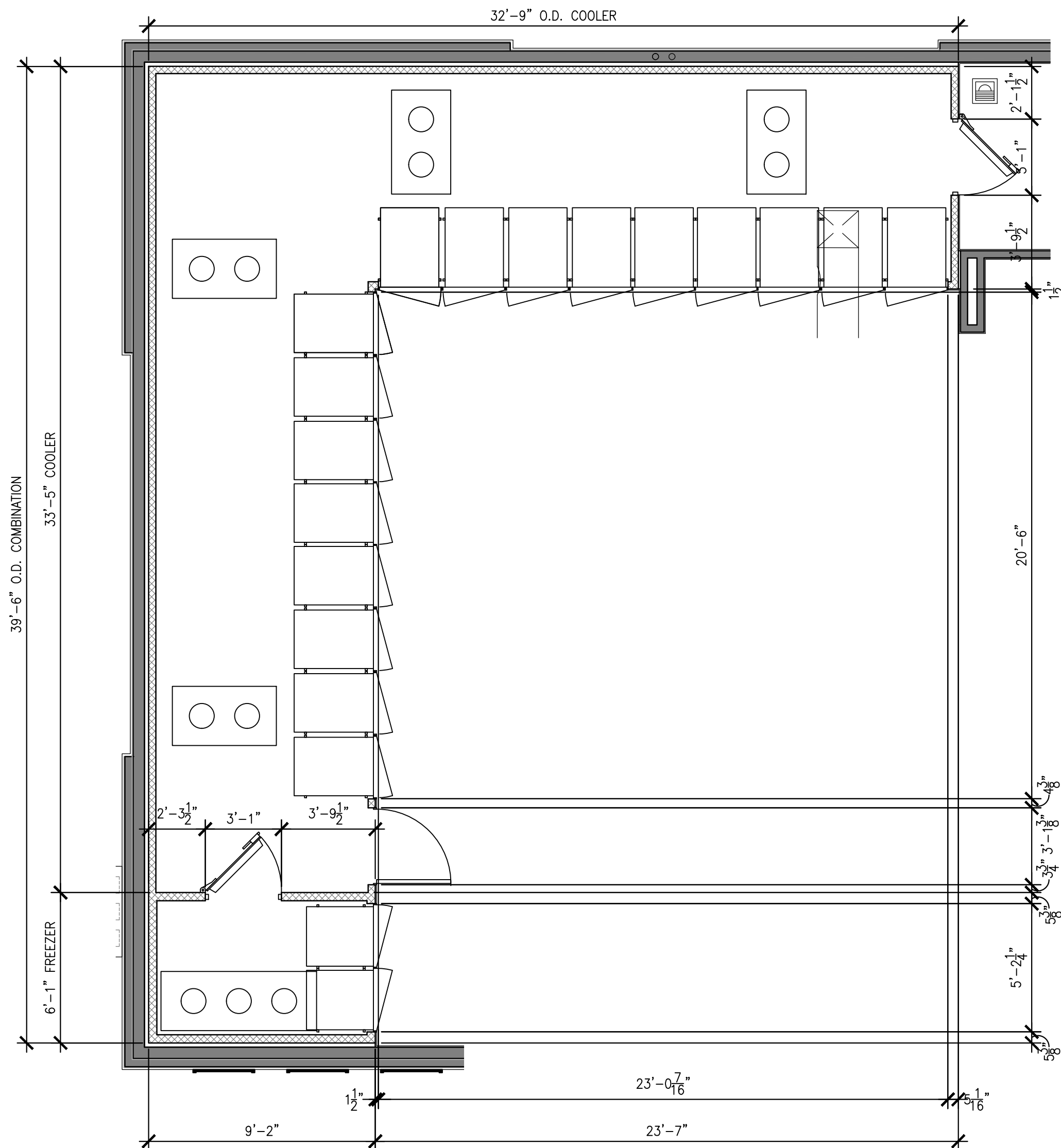


BP
ARCO

BP WEST COAST PRODUCTS, LLC



01 EVAPORATION PIPING SYSTEM
SCALE: N/A



02 COOLER DIMENSION PLAN
SCALE: 1/4"=1'-0"

EVAPORATOR COILS													
	BOX LOAD REQUIREMENTS	QTY.	HEATCRAFT MODEL #	FANS		REFG. TYPE R	REFG. CHG. LBS.	CAPACITY B.T.U.'S 1 HR. EACH	POWER SUPPLY	BOX TEMP. °F.	DEFROST		
				QTY. EACH	CFM						MCA	MCA	
CU-1 CU-2	COOLER	42,737 BTU/H	4	LEC0130AS7AM80200	2	1,300	448A/449A	--	11,000	115/1/60	+35	--	1.8
CU-3	REACH-IN FREEZER	6,623 BTU/H	1	LEC0120BS6EM80200	2	1,300	448A/449A	--	7,448	208/230/1/60	-10	--	1

CONDENSING UNITS											
	BOX LOAD REQUIREMENTS	QTY.	HEATCRAFT MODEL #	SUCTION TEMP.	REFG. TYPE R	REFG. CHG. LBS.	CAPACITY B.T.U.'S 1 HR. EACH	POWER SUPPLY	DEFROST TIMER	MIN. CCT. AMP.	MAX. FUSE SIZE
CU-1 CU-2	COOLER	42,737 BTU/H	2	MOZ030M63C	+23°	448A/449A	--	24,752 Ø95° AMB.	208/230/3/60	AIR	-- --
CU-3	REACH-IN FREEZER	6,623 BTU/H	1	MOZ025L63C	-22°	448A/449A	--	7,597 Ø95° AMB.	208/230/3/60	AIR	-- --

CODES AND STANDARDS

NSF STANDARDS: COMPLY WITH APPLICABLE NATIONAL SANITATION FOUNDATION (NSF) STANDARDS AND RECOMMENDED CRITERIA. PROVIDE EACH PRINCIPAL ITEM OF FOOD SERVICE EQUIPMENT WITH A NSF "SEAL OF APPROVAL".

UL LABEL: WHERE AVAILABLE, PROVIDE UL LABELS ON PRIME ELECTRICAL COMPONENTS OF FOOD SERVICE EQUIPMENT. PROVIDE UL "RECOGNIZED MARKING" ON OTHER ITEMS WITH ELECTRICAL COMPONENTS SIGNIFYING LISTING BY UL, WHERE AVAILABLE.

HEALTH CODE: INSTALL FOOD SERVICE EQUIPMENT IN ACCORDANCE WITH LOCAL HEALTH DEPARTMENT APPLICABLE REGULATIONS.

1. SHOP DRAWINGS UPON APPROVAL OF BID, SUBMIT 3 SETS OF COMPLETE DETAILS, MECHANICAL AND ELECTRICAL REQUIREMENTS, AND INSTALLATION INSTRUCTIONS OF EACH ITEM. INCLUDE INFORMATION ON ROUGHING IN DIMENSIONS, SERVICE CONNECTION REQUIREMENTS, OPENINGS, DISPLAY AND LATCH DOOR MANUFACTURER'S INFORMATION, COMPLETE FLOOR PLANS AND EQUIPMENT SPECIFICATIONS.

2. TAKE FIELD MEASUREMENTS TO ASSURE ACCURATE FIT OF FABRICATED EQUIPMENT.

3. INCLUDE WARRANTY INFORMATION ON ALL EQUIPMENT.

COOLER/FREEZER ALARMS

COOLER/FREEZER ALARMS AS MANUFACTURED BY:

NATIONAL CONTROLS CORPORATION
1725 WESTERN DRIVE
WEST CHICAGO, IL 60185
(800) 323-2593

PROVIDE THE FOLLOWING:

(1) DUAL KIT #TNC-TM100-KT2A
KIT INCLUDES:

- (2) THERMOMETER UNITS
- (2) TEMPERATURE PROBES WITH 6'-0" WIRE
- (1) TRANSFORMER
- (1) STAINLESS STEEL TWIN ENCLOSURE

ADDITIONAL PROBE WIRE #X02-22GNO-820

INSTALLATION:

- INSTALL THERMOMETER UNITS IN CASHIER AREA.
- INSTALL TEMPERATURE PROBE IN EACH RESPECTIVE COOLER/FREEZER COMPARTMENT. SPLICE THE 6'-0" PROBE WIRE WITH ADDITIONAL PROBE WIRE AS REQUIRED TO RETURN TO CASHIER AREA.
- COMPLETELY SEAL ANY AND ALL INTRUSIONS TO COOLER/FREEZER COMPARTMENTS.
- LABEL ALL THERMOMETER UNITS PER RESPECTIVE COOLER/FREEZER COMPARTMENTS.
- SET ALARM TEMPERATURE AS FOLLOWS:
 - WALK-IN COOLER: +35° F.
 - WALK-IN FREEZER: 0° F.
- LOCATE TEMP. PROBES A MIN 2'-0" FROM WALL AND 5'-0" FROM DOOR.

WALK-IN COOLER NOTES

1.0 GENERAL NOTES:

1.1 WALK-IN COOLER SHALL BE PREFABRICATED METAL CLAD PANELS BY CUSTOM COOLERS INC. OR EQUAL. DESIGNED IN MODULAR CONCEPT TO FACILITATE ACCURATE JOB SITE ASSEMBLY.

2.0 PANEL CONSTRUCTION:

2.1 ALL PANELS SHALL BE FOAMED-IN-PLACE CLASS 1, POLYURETHANE CONSTRUCTION WITH 3 1/2" COMPOSITE PANEL THE "R" VALUE TO BE 30 WITH A DENSITY OF 2.2 POUNDS PER CUBIC FOOT.

2.2 THE PERIMETER OF ALL PANELS SHALL BE BUTT JOINT

2.3 PANELS TO BE JOINED TOGETHER BY ENGAGING A CAM-ACTION LOCKING DEVICE. THE CAM ACTION DEVICE WILL DRAW THE SECTIONS TOGETHER TO FORM A TIGHT SEAL.

2.4 STANDARD PANEL FINISH SHALL BE 26 GAUGE STUCCO EMBOSSED GALVANIZED STEEL SKIN EXTERIOR WITH WHITE INTERIOR.

2.5 PROVIDE 7-1/2" DOOR SILL HEIGHTS FOR GLASS DISPLAY DOORS.

2.6 INSULATION IS CLASS 1, POLYURETHANE FOAM WITH A FLAME SPREAD LESS THAN 25 AND A SMOKE DEVELOPMENT OF LESS THAN 450.

2.7 CERTIFICATIONS: UL AND NSF APPROVED

2.8 MEASUREMENTS AND CONFIGURATIONS REFER TO THIS SHEET.

3.0 COOLER WALK-IN DOOR
MANUFACTURED BY CUSTOM COOLERS, INC. OR EQUAL.

3.1 36" x 82" CUSTOM "ANTHONY 103NT (HEAVY DUTY) ALL GLASS PASS-THRU DOOR, SLIMLINE BLACK HANDLE, PRO LEDS, NO THRESHOLD, CYLINDER DOOR LOCK, ALL BLACK FINISH DOOR & FRAME, STAINLESS STEEL INTERIOR/EXTERIOR 10" KICKPLATES.

3.2 LOCATION AND SWING AS SHOWN ON THIS SHEET.

3.3 FREEZER WALK-IN DOOR
MANUFACTURED BY CUSTOM COOLERS, INC. OR EQUAL.

3.4 DOOR SHALL BE NOMINAL 3 1/2" FOAMED-IN-PLACE CLASS 1, POLYURETHANE CONSTRUCTION.

3.5 DOOR TO BE HINGED, IN-FIT, AND HAVE 36" HIGH DIAMOND PLATE KICK PLATES FOR INTERIOR AND EXTERIOR.

3.6 HINGES SHALL BE CAM-RISE WITH BRIGHT SILVER ANODIZED FINISH ON FRAME AND DOOR TRIM, TWO HINGES PER DOOR.

3.7 LATCH AND STRIKE TO HAVE A SATIN SURFACE CHROME FINISH WITH PROVISION FOR PADLOCK. LATCH TO HAVE INSIDE SAFETY RELEASE TO PREVENT ENTRAPMENT.

3.8 DOOR TO HAVE REPLACEABLE GASKETS FOR A POSITIVE SEAL AND AN ADJUSTABLE VINYL WIPER GASKET FOR SEAL AT DOOR FRAME THRESHOLD.

3.9 A FLUSH MOUNTED 2" DIAL THERMOMETER OF CORRECT TEMPERATURE RANGE SHALL BE PROVIDED AT THE DOOR. THE THERMOMETER SHALL BE EASILY CALIBRATED. THE THERMOMETER SENSING BULB ON THE INTERIOR OF THE DOOR SECTION TO HAVE PROTECTIVE COVER.

3.10 LIGHTING SHALL CONSIST OF THREE VAPOR-PROOF LIGHT FIXTURES TO BE FURNISHED LOSE, AND A LIGHT SWITCH WITH PILOT LIGHT FLUSH MOUNTED ON EXTERIOR. THE WIRING SYSTEM SHALL BE APPROVED BY UNDERWRITERS LABORATORY.

3.11 PROVIDE LOCKS ON DOORS AS INDICATED ON COOLER PLAN.

3.12 PROVIDE WALL BUMPER GUARD

4.0 GLASS DISPLAY DOORS:
MANUFACTURED BY ANTHONY OR EQUAL

4.1 30" x 75" H. DISPLAY DOORS (SILL AT 7-1/2" A.F.F.)

4.2 ENERGY SAVER CONTROLS

4.3 FINISH TO BE SMOOTH BLACK.

4.4 COOLER DISPLAY DOORS SHALL HAVE 3-PANE KRYPTON GAS FILLED NON-HEATED INSULATED SAFETY GLASS

4.5 LED LIGHTING

4.6 36" DEEP SHELVES, (7) PER DOOR

4.7 KEY CYLINDER LOCK AT EACH DOOR.

4.8 FREEZER DISPLAY DOORS SHALL HAVE 3-PANE KRYPTON GAS FILLED HEATED SAFETY GLASS

5.0 REFRIGERATION:

5.1 ALL EQUIPMENT MUST CONFORM TO CONDENSING UNITS AND UNIT COOLERS SCHEDULE AS OUTLINED ON THIS SHEET. EQUIPMENT MUST HAVE UL LISTING FOR THE APPLICATION AS SPECIFIED.

5.2 CONDENSING UNIT AS SPECIFIED SHALL HAVE THE FOLLOWING:

1. HIGH EFFICIENCY ALUMINUM FIN. COPPER TUBE CONDENSER.

2. COMPRESSOR CONTRACTOR.

3. HIGH AND LOW PRESSURE CONTROLS

4. WEATHER RESISTANT HOUSING WITH WEATHER-PROOF ELECTRICAL CONTROL BOX

5. ACCESS GUARD.

6. LOW AMBIENT CONTROL VALVE (CVP II) FPR FLOATING HEAD.

7. CRANKCASE HEATER

8. LIQUID LINE FILTER DRIER, SIGHT GLASS AND SERVICE VALVE.

9. ELECTRIC DEFROST TIMER.

10. EXPANSION VALVES.

11. THERMOSTAT AND SOLENOID.

5.3 EVAPORATOR COILS SPECIFIED IN EVAPORATOR COIL SCHEDULE.

5.4 EXPANSION VALVE SHALL BE SIZED BY UNIT COOLER MANUFACTURER FOR PROPER REFRIGERATION. AS HEAD PRESSURE IS ALLOWED TO DROP DURING LOW AMBIENT CONDITIONS, EXPANSION VALVE NEEDS TO BE OVERSIZED TO ALLOW FLOW AT LOWER PRESSURE DIFFERENTIAL RATIO.

5.5 THERMOSTATS SHALL BE FURNISHED LOOSE FOR EACH SYSTEM AND SHALL BE WHITE RODGERS MODEL #1609-101 OR EQUAL, TAMPER-PROOF WITH PROPER TEMPERATURE RANGE, AS REQUIRED ON THIS DRAWING. OPTIONAL MANUFACTURERS: JOHNSON OR RANCO OR EQUAL.

5.6 SOLENOIDS SHALL BE FURNISHED LOOSE FOR EACH SYSTEM AS RECOMMENDED BY CONDENSING UNIT MANUFACTURER.

5.7 CONDENSATE PIPING SHALL BE COPPER OR PVC AND TRAPPED AFTER WALL PENETRATION. HEAT TAPE AND INSULATE WHERE REQUIRED TO PREVENT FREEZE UP.

5.8 REFRIGERATION WARRANTY SHALL BE A MINIMUM OF ONE (1) YEAR PARTS FOUR (4) YEAR COMPRESSOR WARRANTY AND NINETY (90) DAYS SERVICE.

5.9 HEAT SENSOR TO BE LOCATED 1'-2" ABOVE DOOR FRAME TO ALLOW FOR GRAPHICS INSTALLATION.

6.0 REFRIGERATION INSTALLATION

6.1 EVAPORATOR COILS SHALL BE MOUNTED FROM CEILING WITH 5/16" MINIMUM FASTENERS.

6.2 CONDENSING UNITS ARE MOUNTED ON THE ROOF AND MUST BE LEVEL WITH ITS BASE ANCHORED TO PREVENT MOVEMENT. ALLOW PROPER CLEARANCE FOR AIR SUPPLY TO AND FROM UNIT AND FOR PROPER MAINTENANCE ACCESS.

6.3 SUCTION LINES AT TOP OF RISER ON ROOF SHALL BE SLOPED 1" PER TEN (10) FEET TO COMPRESSOR. ALL SUCTION LINES SHALL BE SIZED AND TRAPPED. INSULATE TO PREVENT SWEATING.

6.4 LIQUID LINES AND SOLENOID VALVE SHOULD BE INSTALLED IN THE LIQUID LINE JUST AHEAD OF EXPANSION VALVE IN COOLER.

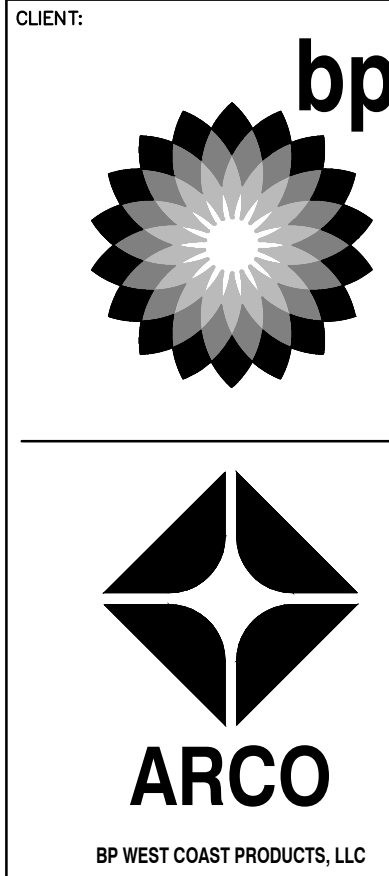
6.5 BRAZING SHALL BE SILVER BEARING SOLDER HIGH TEMPERATURE OR EQUIVALENT ALLOY SUITABLE FOR THIS APPLICATION. NO "SOFT SOLDERS" PERMISSIBLE. NITROGEN IS TO BE PURGED THROUGH THE SYSTEM DURING BRAZING.

6.6 LEAK TEST THE ENTIRE SYSTEM AFTER ALL REFRIGERATION CONNECTIONS HAVE BEEN COMPLETED. LEAK TESTING SHALL BE PERFORMED WITH AN ELECTRONIC LEAK DETECTOR.

6.7 THE SYSTEM MUST BE EVACUATED WITH A VACUUM PUMP, HAVING THE CAPABILITY OF PULLING A VACUUM OF 50 MICRONS OR LESS. THE PUMP SHOULD BE CONNECTED TO BOTH THE HIGH AND LOW SIDES OF THE SYSTEM.

6.8 DURING CHARGING AND START-UP MAKE SURE SHIPPING RESTRAINTS ARE REMOVED AND ALL ELECTRICAL AND MECHANICAL CONNECTIONS ARE TIGHT. SET HIGH LOW PRESSURE SWITCH AS REQUIRED.

6.9 INSTALLATION AND SERVICE OF THIS EQUIPMENT SHOULD BE PERFORMED BY QUALIFIED AND EXPERIENCED REFRIGERATION MECHANICS. INSTALL ALL EQUIPMENT, PIPING IN ACCORDANCE WITH LOCAL AND NATIONAL CODES AND IN CONFORMANCE WITH GOOD PRACTICE REQUIRED FOR PROPER OPERATION.



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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

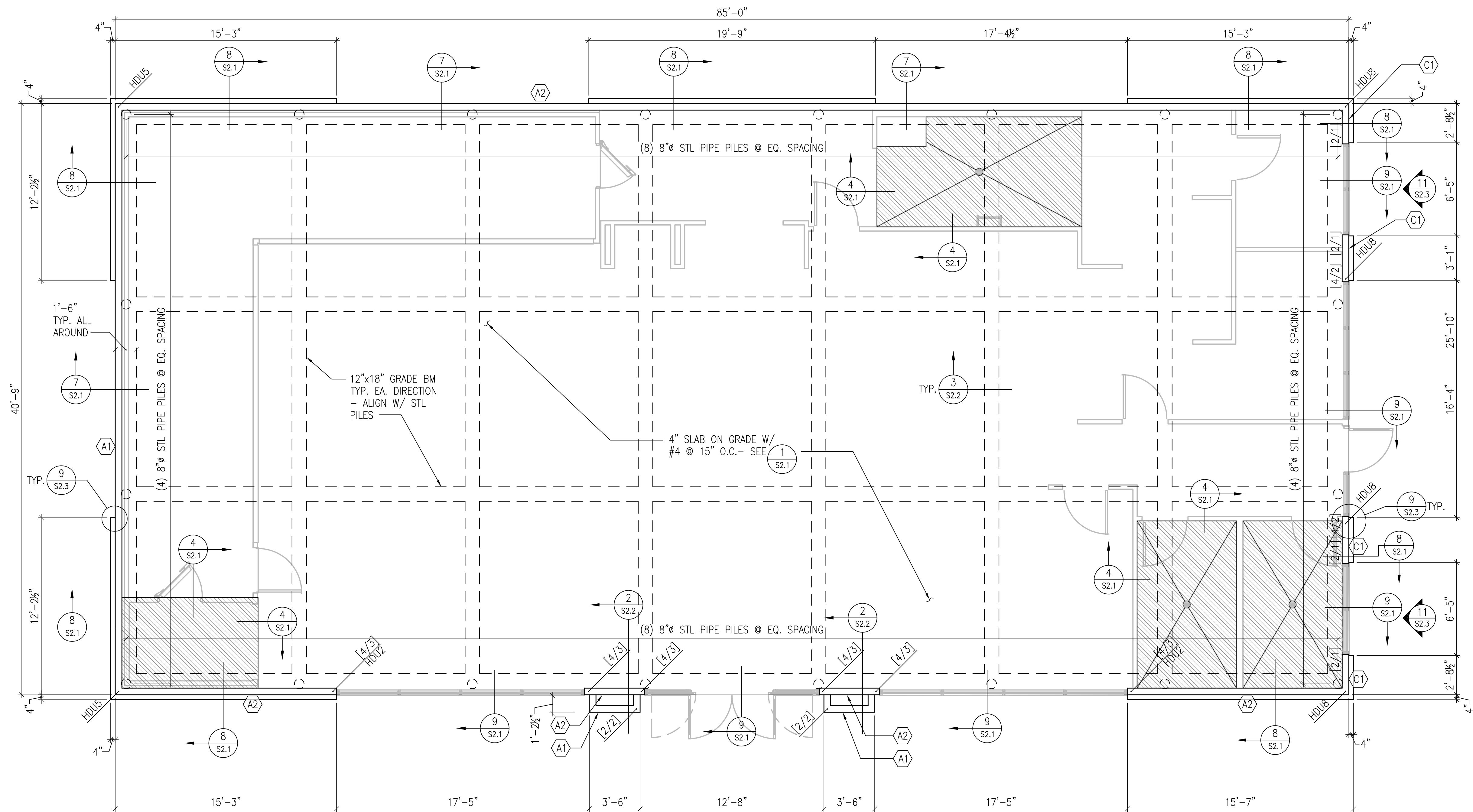
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VERSION:	PROJECT NO:
	21730

DRAWING TITLE:

COOLER PACKAGE

SHEET NO:

Q1.2

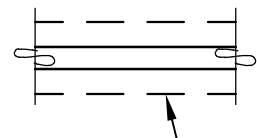


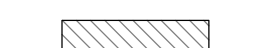
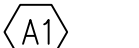




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S1.1

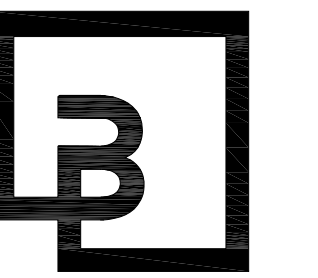
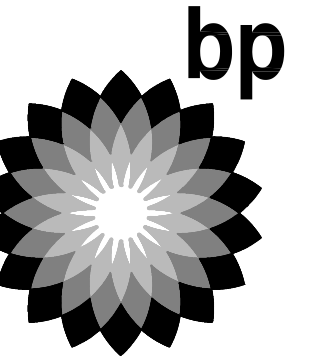
FOUNDATION PLAN

1/4"=1'-0"

FOUNDATION NOTES

- COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. FINISH FLOOR = 0'-0" A.F.F. UNLESS NOTED OTHERWISE.
-  INDICATES WOOD STUD WALL. WOOD STUDS SHOULD ALIGN WITH TRUSS LAYOUT AND BE SPACED @ 16" O.C. MAXIMUM UNLESS NOTED OTHERWISE. PROVIDE 15/32" WOOD SHEATHING AT ALL EXTERIOR WALLS NAILED WITH 8d @ 6" O.C. AT ALL PANEL EDGES (PROVIDE 2x BLOCKING AT UNSUPPORTED PANEL EDGES) AND 8d @ 12" O.C. AT INTERMEDIATE FRAMING TYPICAL UNLESS NOTED OTHERWISE. SEE NOTE 11 FOR ADDITIONAL SHEAR WALL NAILING.
-  INDICATES CONCRETE GRADE BEAM 1'-6" UNLESS NOTED OTHERWISE. SEE S2.1 FOR TYPICAL FOUNDATION DETAILS.
-  INDICATES HOLDOWN. SEE 1/S2.2 AND 4/S2.3.
-  INDICATES DEPRESSED SLABS. FOR EXACT LOCATION SEE ARCHITECTURAL DRAWINGS.
- FOR TYPICAL CONCRETE SLAB-ON-GRADE DETAILS SEE S2.1.
- FOR TYPICAL STEPS IN FOOTING AND FOUNDATION CONSTRUCTION JOINTS SEE DETAILS 5/S2.1 AND 2/S2.1.
- FOR TYPICAL EXCAVATION LIMITATIONS IN THE PROXIMITY OF FOUNDATIONS SEE 6/S2.1.
- NON-STRUCTURAL STUD WALLS ARE NOT SHOWN OR SHOWN SCREENED. FOR LOCATION SEE ARCHITECTURAL DRAWINGS. FOR BRACING AT TOPS OF WALLS SEE S2.4.
-  INDICATES SPECIAL WOOD STUD SHEAR WALL. SEE 6/S2.3 FOR SCHEDULE.
-  INDICATED WOOD STUD BUILT-UP COLUMN - SEE 10/S2.3 FOR TYPICAL DETAIL.
- [1/2] INDICATES NUMBER OF FULL HEIGHT AND NUMBER OF CRIPPLE STUDS AT END OF HEADER SEE 5/S2.3.
- FOR SITE TRASH ENCLOSURE SEE S2.9 FOR PLAN AND DETAILS. FOR LOCATION SEE ARCHITECTURAL DRAWINGS.
-  INDICATES 8" STEEL PIPE PILE BELOW. SEE GENERAL NOTES FOR PILE DETAILS AND INSTALLATION REQUIREMENTS.
- FOR UNDERGROUND STORAGE TANK FOUNDATION DETAILS SEE S2.10. FOR LOCATION SEE ARCHITECTURAL DRAWINGS.
- FOR EV CHARGING STATION FOUNDATION DETAIL SEE S2.11. FOR LOCATION SEE ARCHITECTURAL DRAWINGS.

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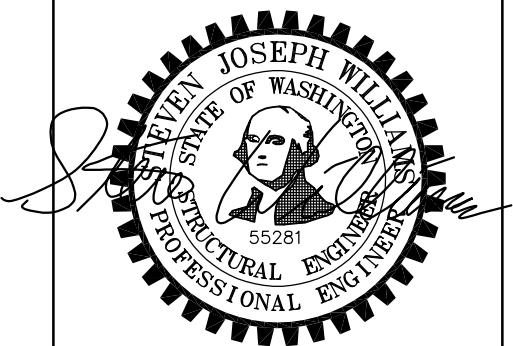


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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

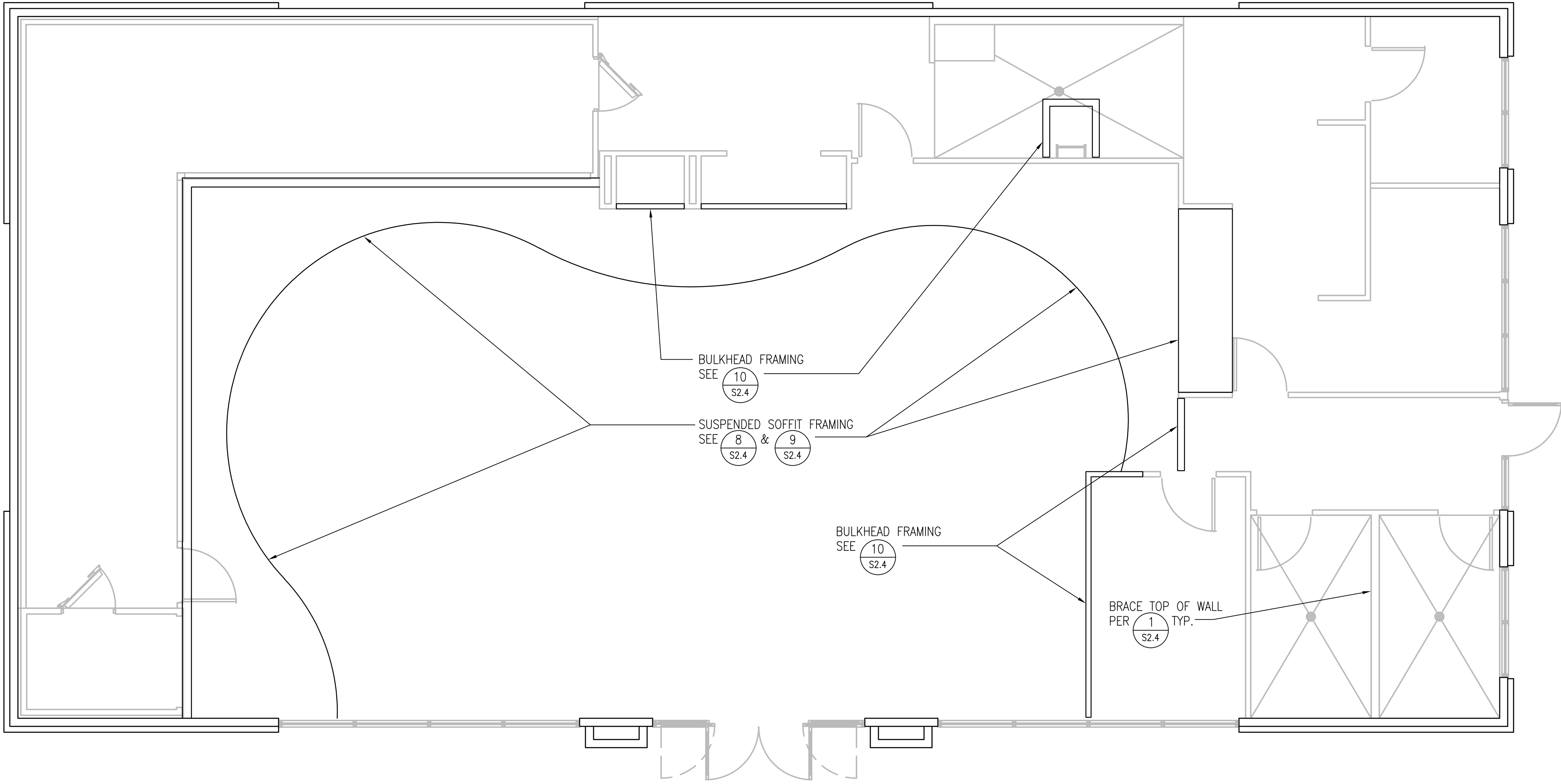
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VERSION:	-	PROJECT NO:
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**FOUNDATION
PLAN**

SHEET NO:

S1.1



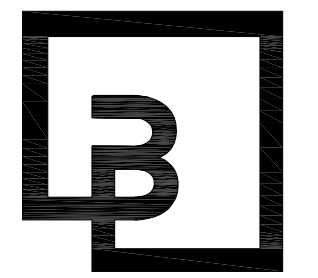
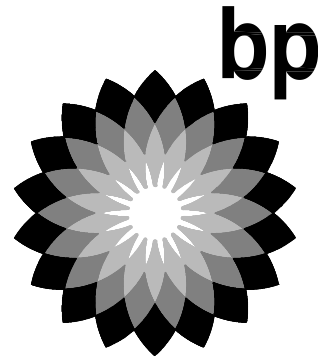
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S1.2

CEILING FRAMING PLAN
1/4"=1'-0"

NOTES

- FOR ADDITIONAL DIMENSIONS, CEILING ELEVATIONS, FINISHES AND DETAILS SEE ARCHITECTURAL DRAWINGS.
- SEE S2.4 FOR TYPICAL CEILING AND BRACING DETAILS.
- INDICATES SPAN OF CEILING JOISTS. PROVIDE 2x6 @ 24" O.C. CEILING JOISTS, UNLESS NOTED OTHERWISE.
- SUSPENDED SOFFIT FRAMING SHALL BE CONSTRUCTED WITH 350S137-33 JOISTS & STUDS @ 24" O.C. OR EQUAL
SEE 8 S2.4 & 9 S2.4
- SEE 6 S2.4 & 7 S2.4 FOR TOP OF WALL CONNECTION.

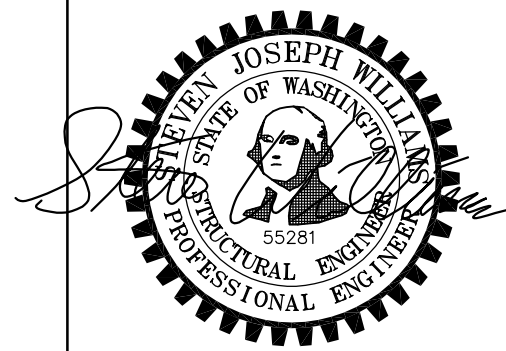
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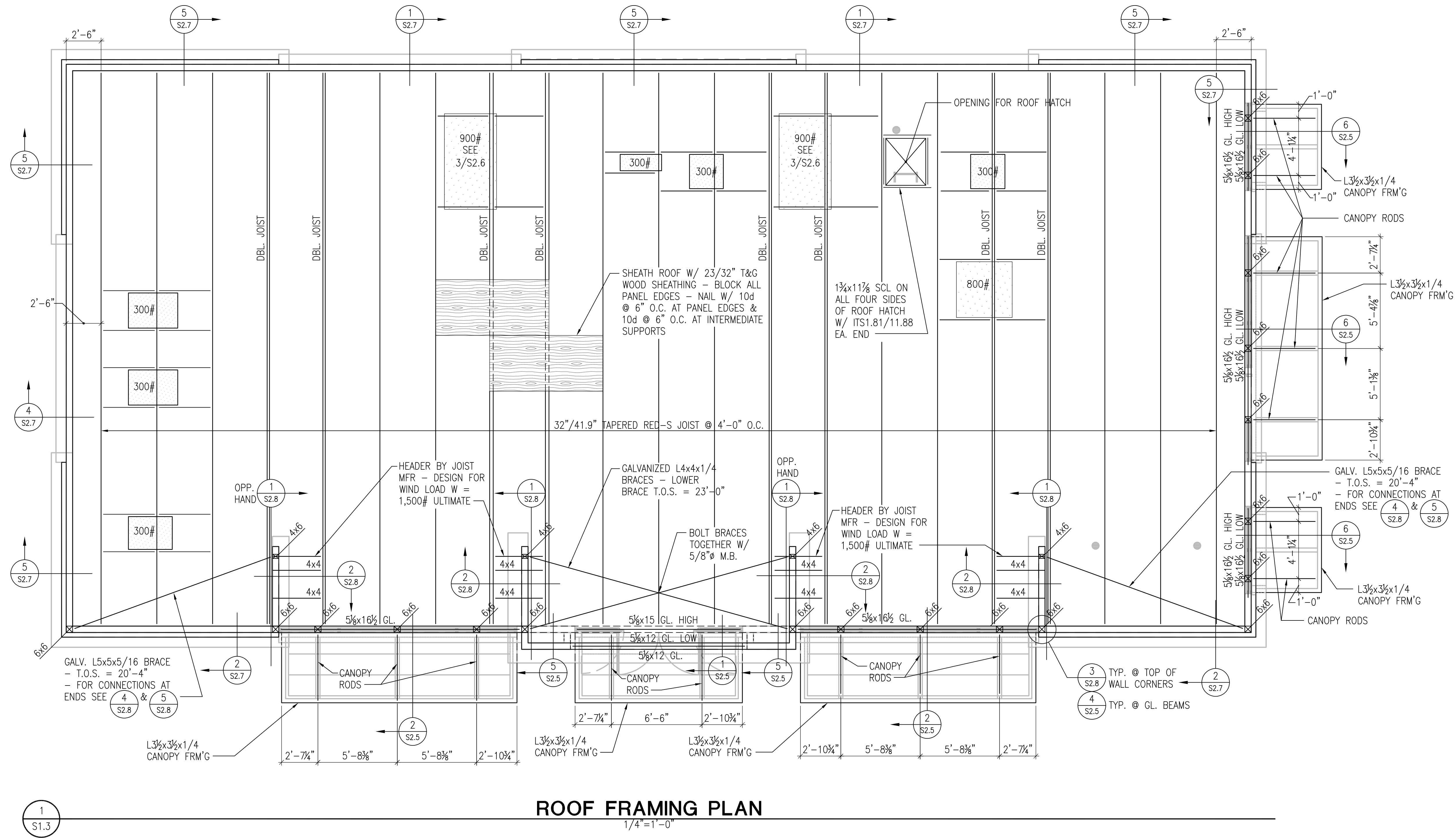
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**CEILING
FRAMING PLAN**

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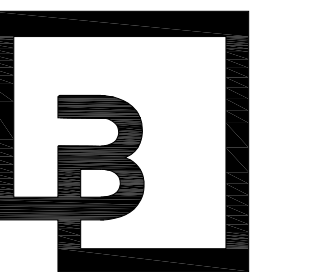
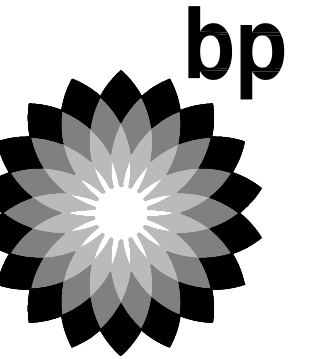
S1.2



ROOF FRAMING NOTES

- COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. FINISH FLOOR = 0'-0" A.F.F. UNLESS NOTED OTHERWISE.
- INDICATES STRUCTURAL WALL EXTENDING TO ROOF STRUCTURE.
- INDICATES PENETRATION IN ROOF STRUCTURE.
- PROVIDE 23/32" T&G WOOD SHEATHING OVER ENTIRE ROOF STRUCTURE. NAIL WOOD ROOF SHEATHING WITH 10d @ 6" O.C. AT ALL SUPPORTED PANEL EDGES AND 10d @ 6" O.C. AT INTERMEDIATE FRAMING. TYPICAL UNLESS NOTED OTHERWISE.
- FOR SUPPORT OF MISCELLANEOUS MECHANICAL EQUIPMENT AND PIPES FROM ROOF STRUCTURE SEE S2.6.
- ROOF TRUSSES ARE A DEFERRED SUBMITTAL ITEM, SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE, AND THE PACKAGE SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD. SEE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

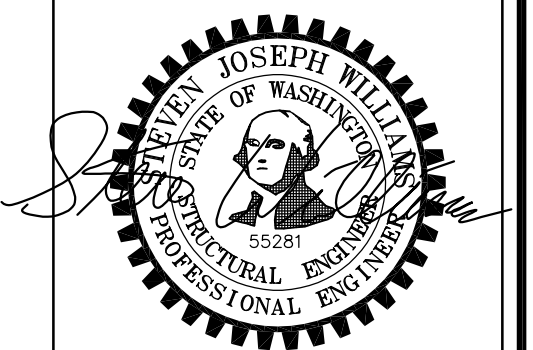
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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

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FACILITY #7184

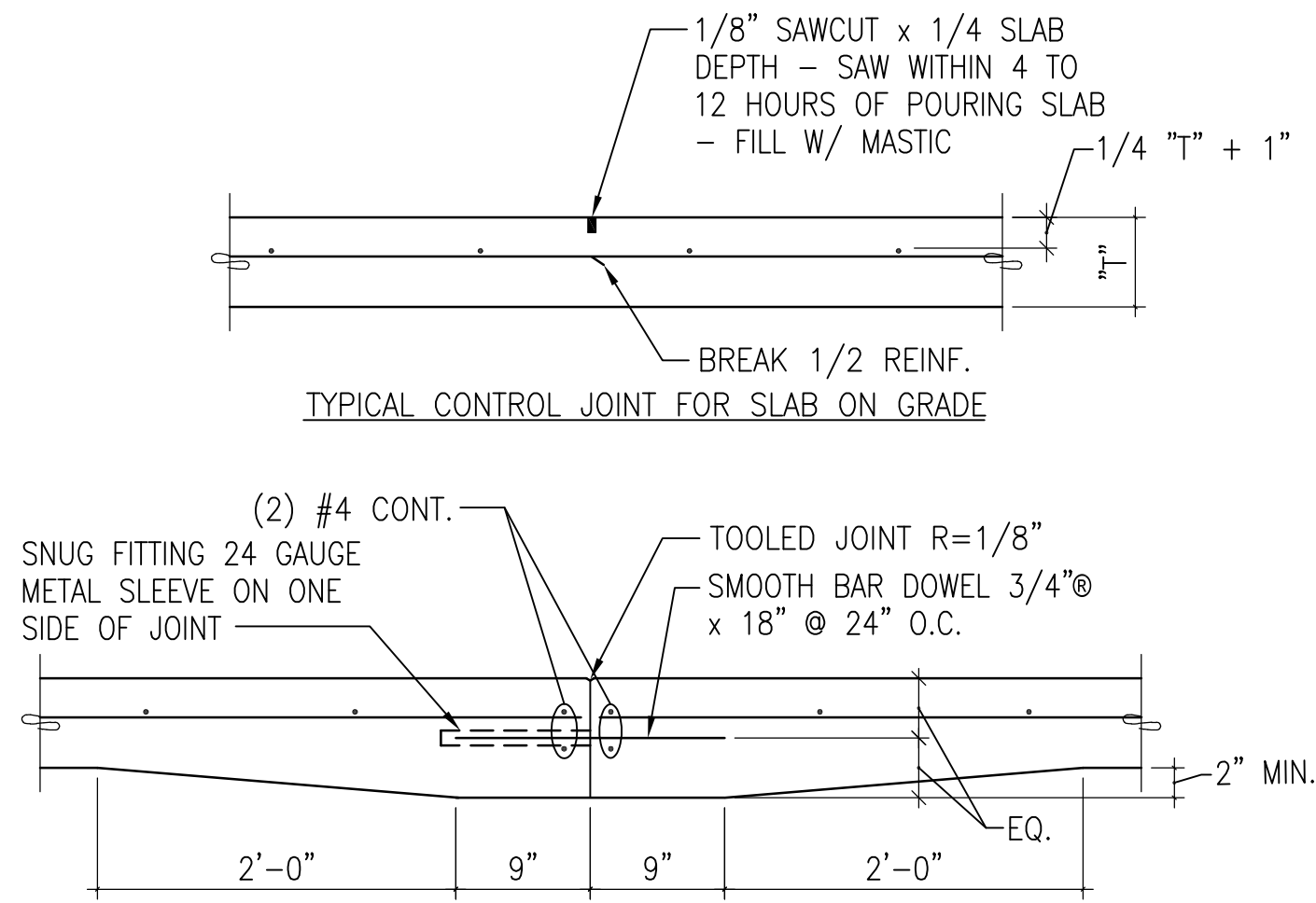
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ROOF
FRAMING PLAN

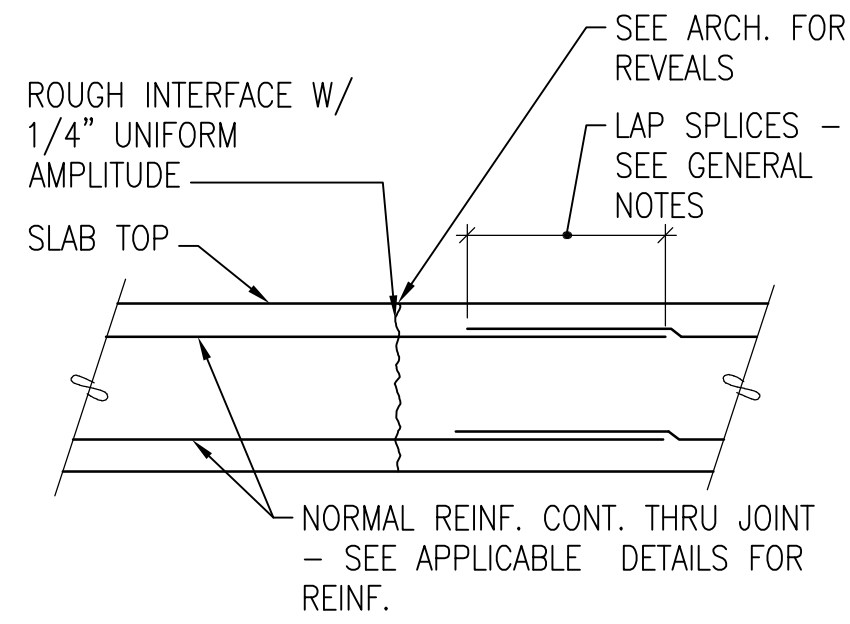
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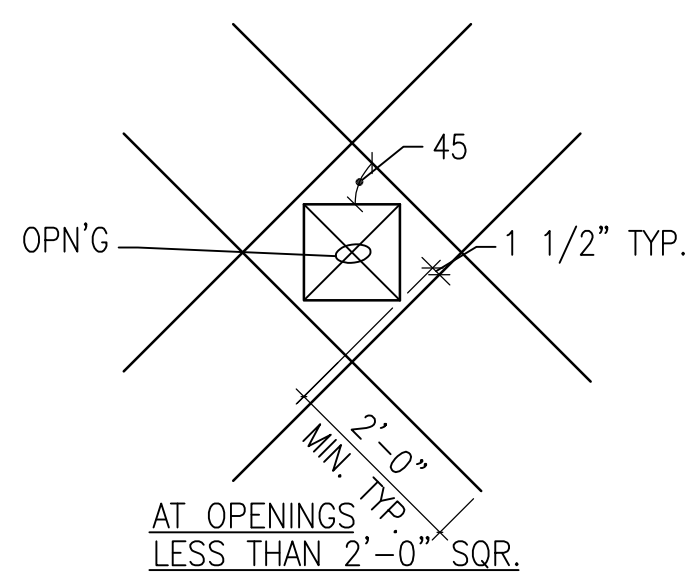
TYPICAL CONSTRUCTION JOINT FOR SLAB ON GRADE

1
S2.1
SECTION
NO SCALE



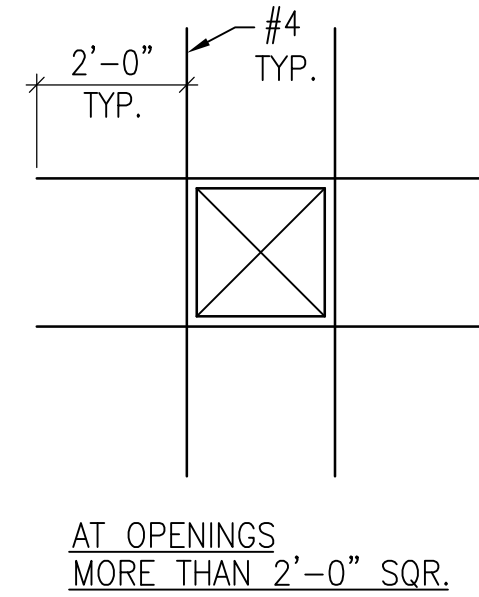
TYPICAL AT CONCRETE GRADE BEAMS & FOOTINGS

NOTE:
OBTAIN APPROVAL OF ENGINEER FOR LOCATION OF ANY CONST. JOINTS.
2
S2.1
CONSTRUCTION JOINTS
NO SCALE

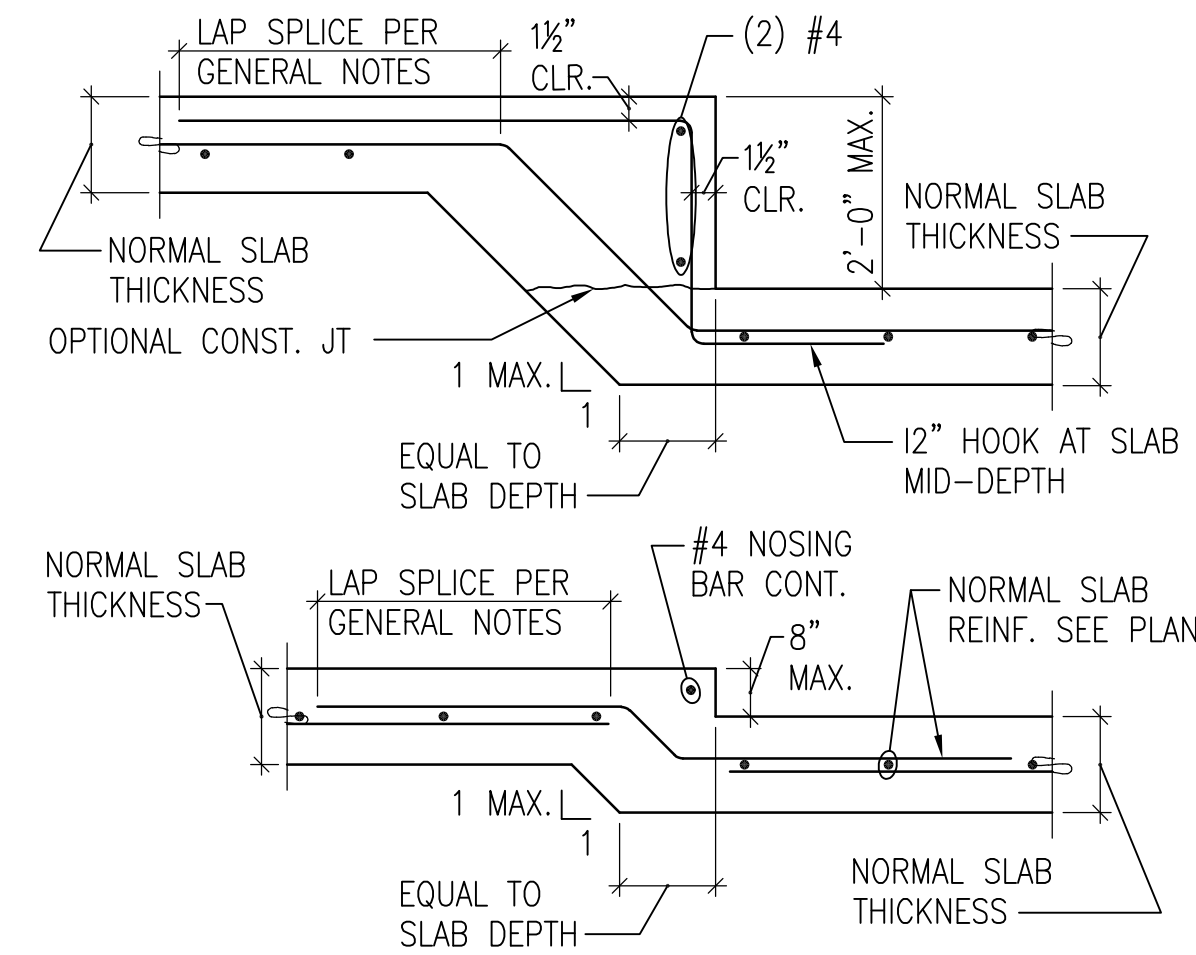


TYPICAL SLAB ON GRADE DISCONTINUITY REINFORCEMENT

3
S2.1
PLAN DETAILS
NO SCALE

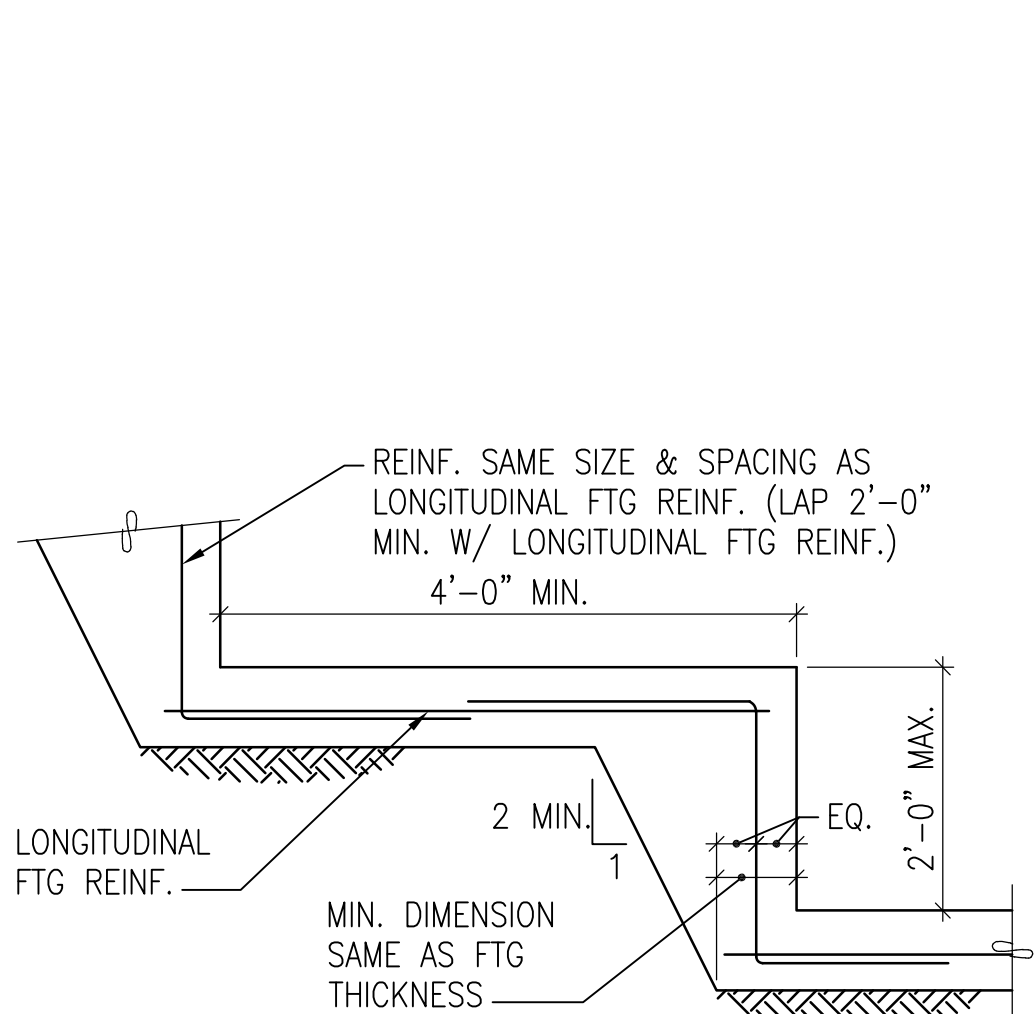


NOTES:
1. AROUND OPENINGS 6"Ø OR LESS NO ADD'L REINF. REQ'D
2. REINF. SHOWN IS #4 @ SLAB MID-DEPTH HOOK BARS THAT CANNOT BE EXTENDED



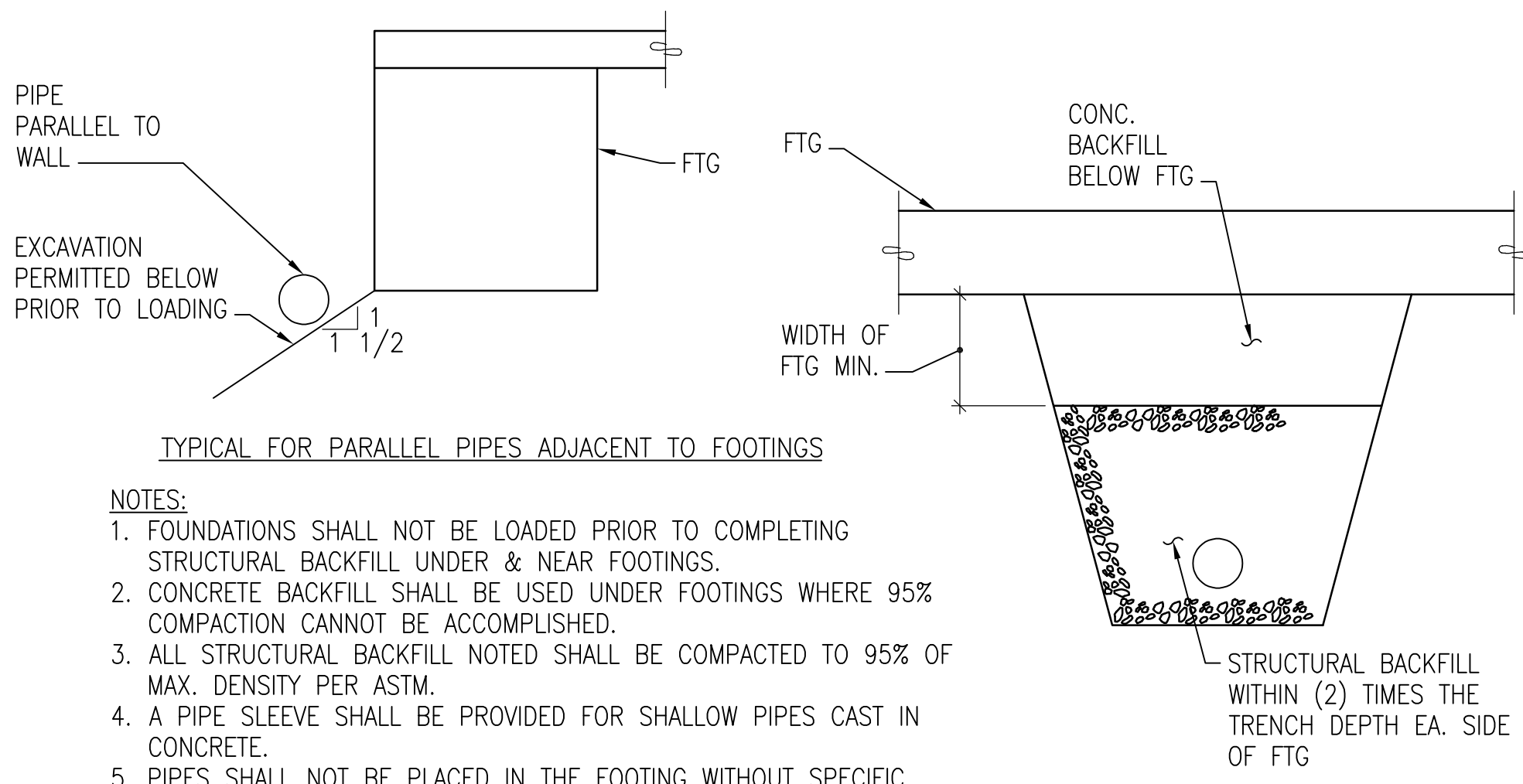
TYPICAL SLAB STEPS OR DEPRESSIONS

4
S2.1
DETAIL
NO SCALE



TYPICAL STEPPED FOOTING

5
S2.1
DETAIL
NO SCALE

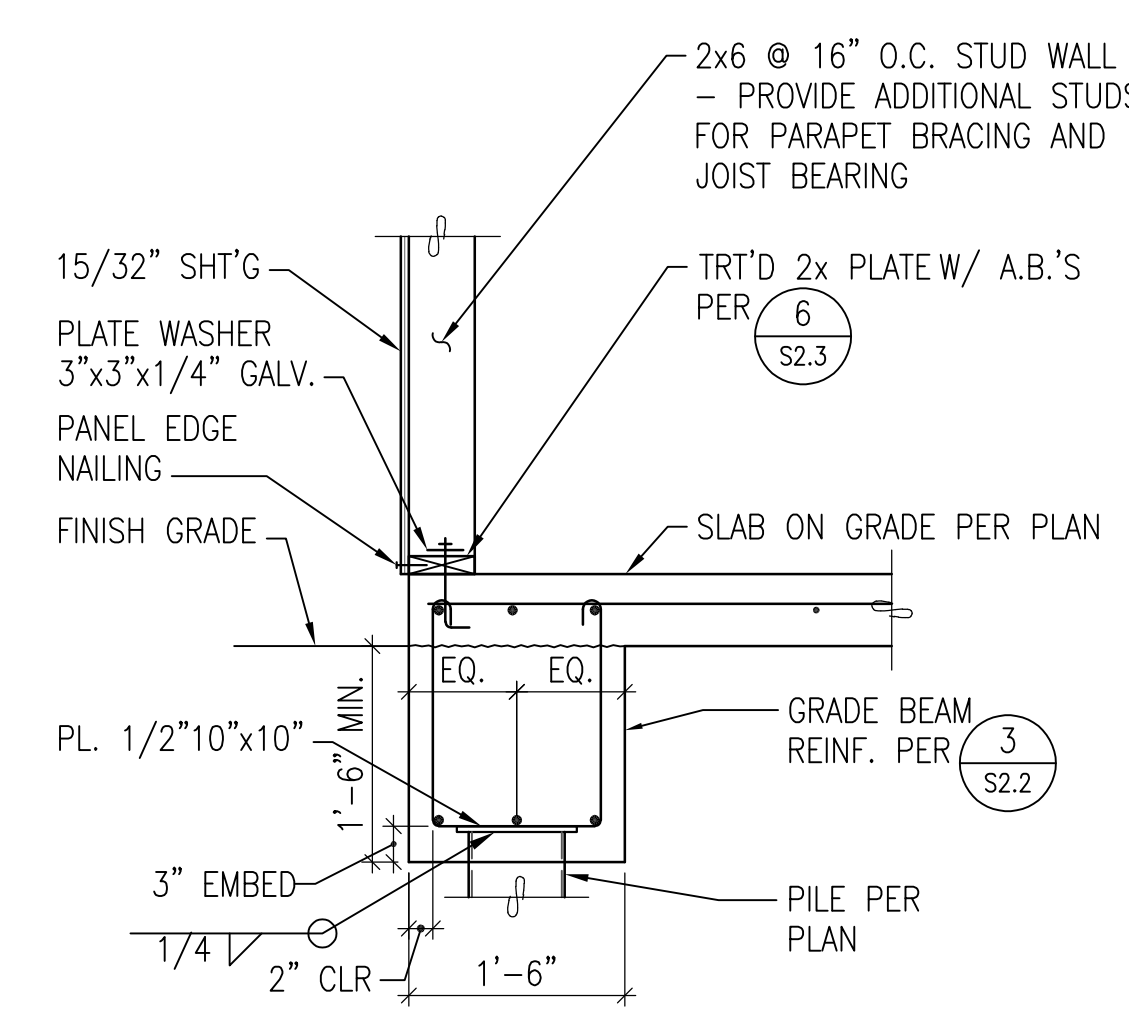


TYPICAL FOR PARALLEL PIPES ADJACENT TO FOOTINGS

NOTES:
1. FOUNDATIONS SHALL NOT BE LOADED PRIOR TO COMPLETING STRUCTURAL BACKFILL UNDER & NEAR FOOTINGS.
2. CONCRETE BACKFILL SHALL BE USED UNDER FOOTINGS WHERE 95% COMPACTION CANNOT BE ACCOMPLISHED.
3. ALL STRUCTURAL BACKFILL NOTED SHALL BE COMPACTED TO 95% OF MAX. DENSITY PER ASTM.
4. A PIPE SLEEVE SHALL BE PROVIDED FOR SHALLOW PIPES CAST IN CONCRETE.
5. PIPES SHALL NOT BE PLACED IN THE FOOTING WITHOUT SPECIFIC APPROVAL FROM THE ENGINEER.
6. FOR VARIATIONS CONTACT ENGINEER.

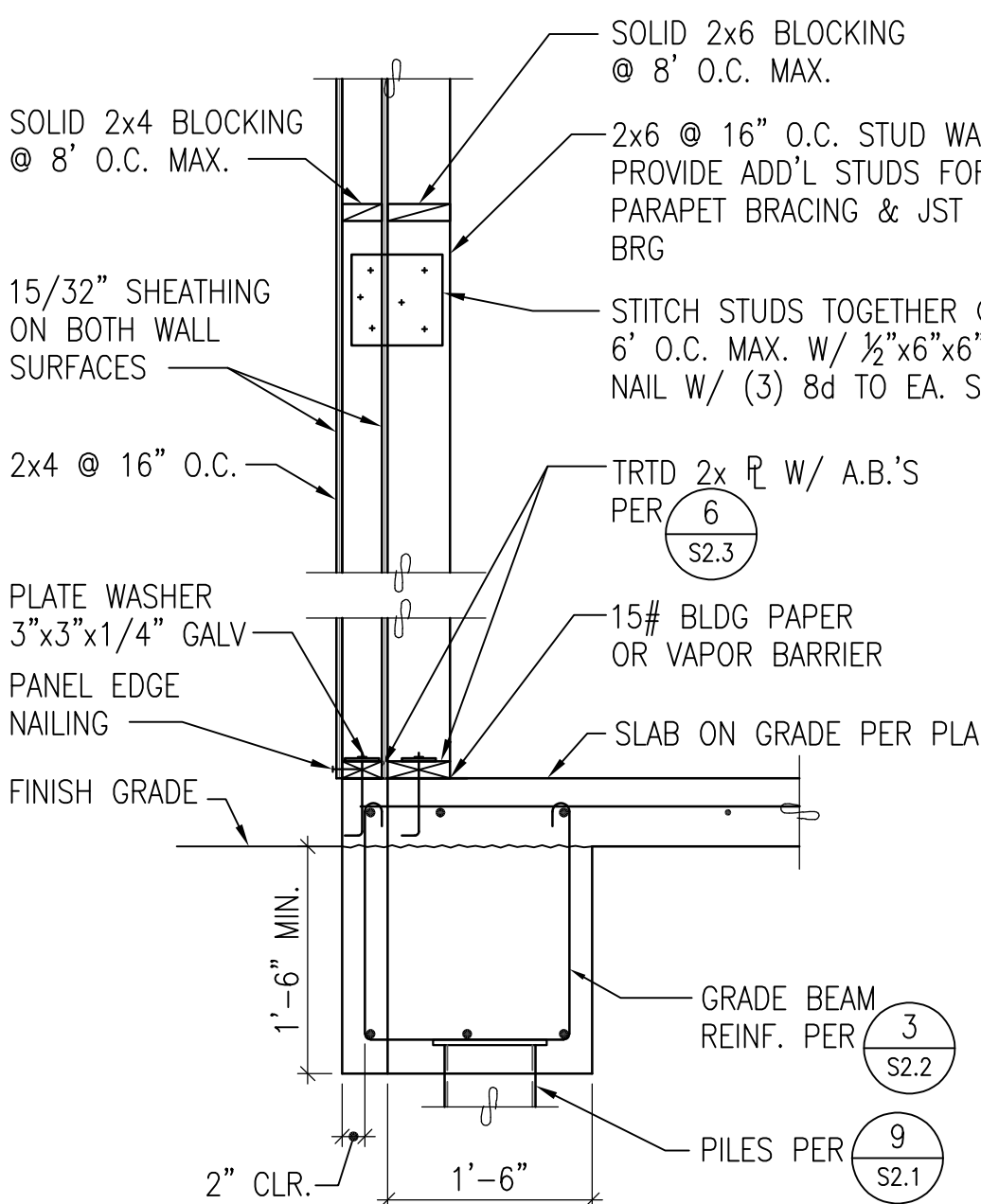
TYPICAL FOR PERPENDICULAR PIPES UNDER FOOTINGS

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SECTION
NO SCALE



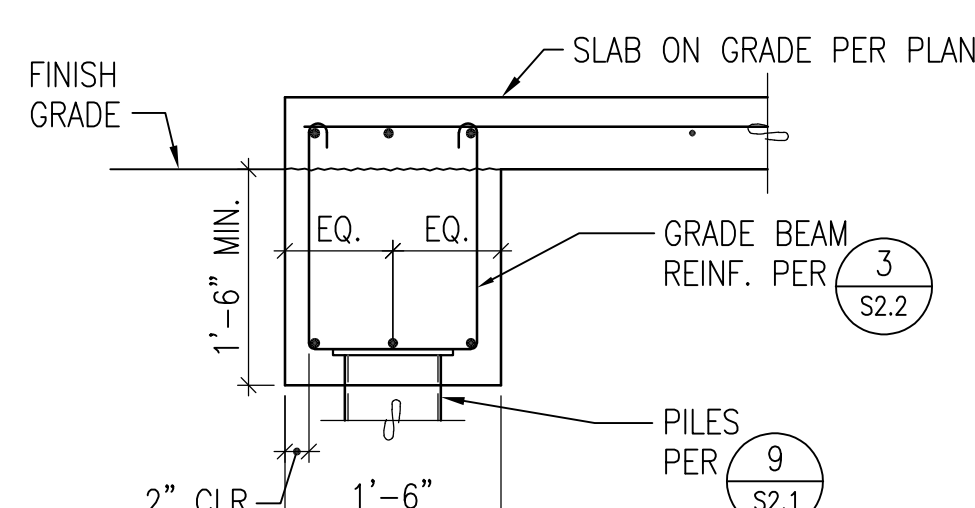
TYPICAL FOUNDATION AT EXTERIOR STUD WALL

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S2.1
SECTION
NO SCALE



TYPICAL FOUNDATION AT EXTERIOR STUD WALL

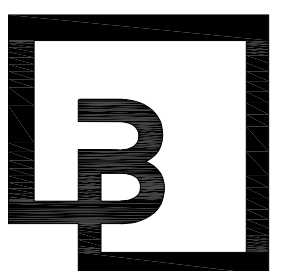
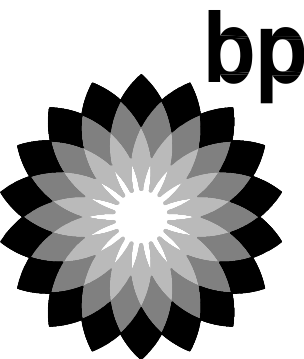
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S2.1
SECTION
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TYPICAL FOUNDATION AT EXTERIOR STUD WALL

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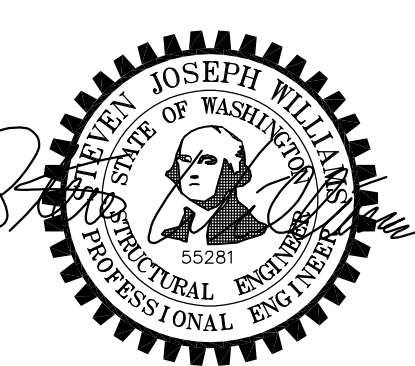


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DEVELOPMENT INFORMATION:

ARCO NTI
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FUEL CANOPY w/ 6 MPD's

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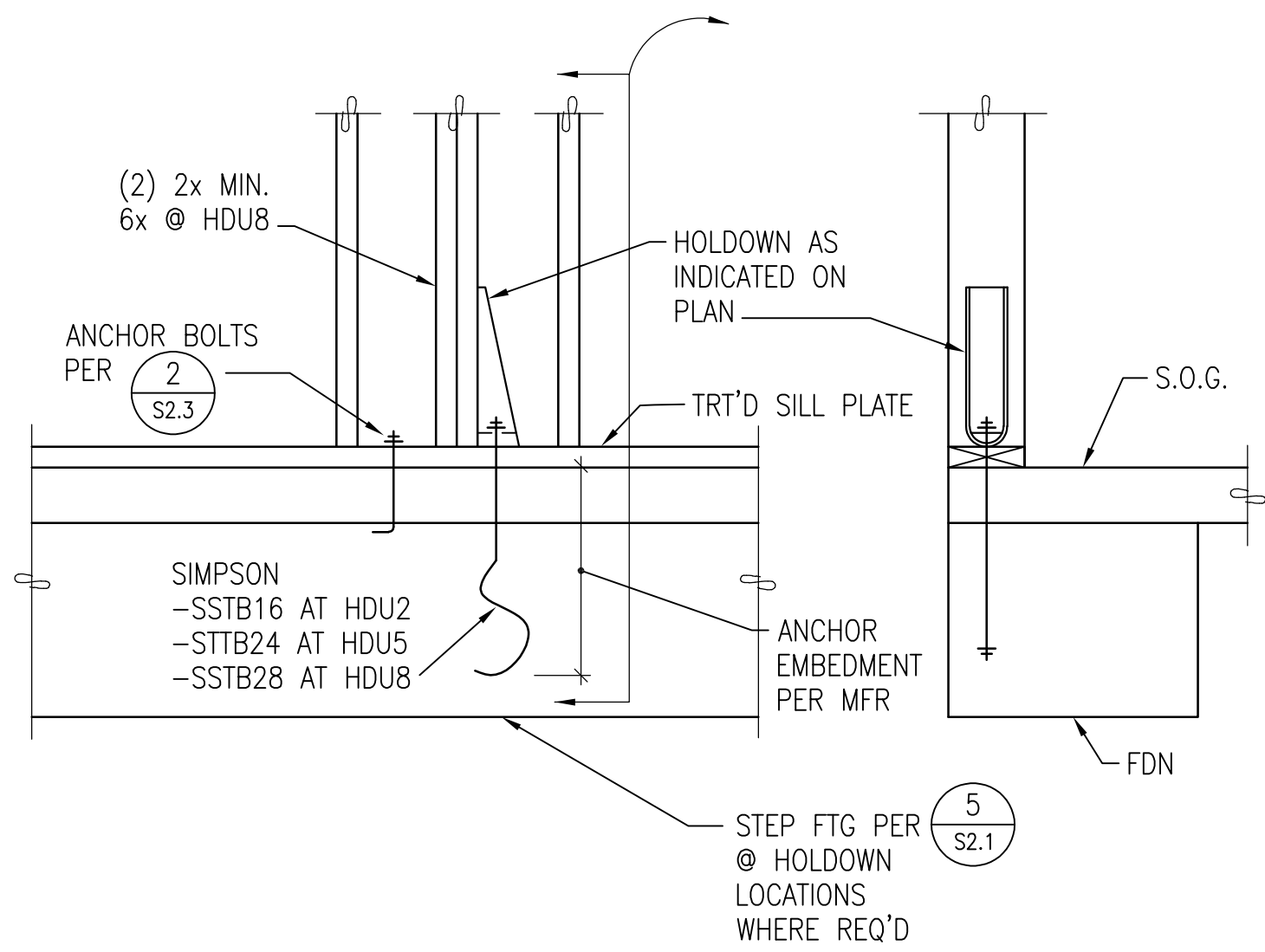
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DETAILS

SHEET NO:

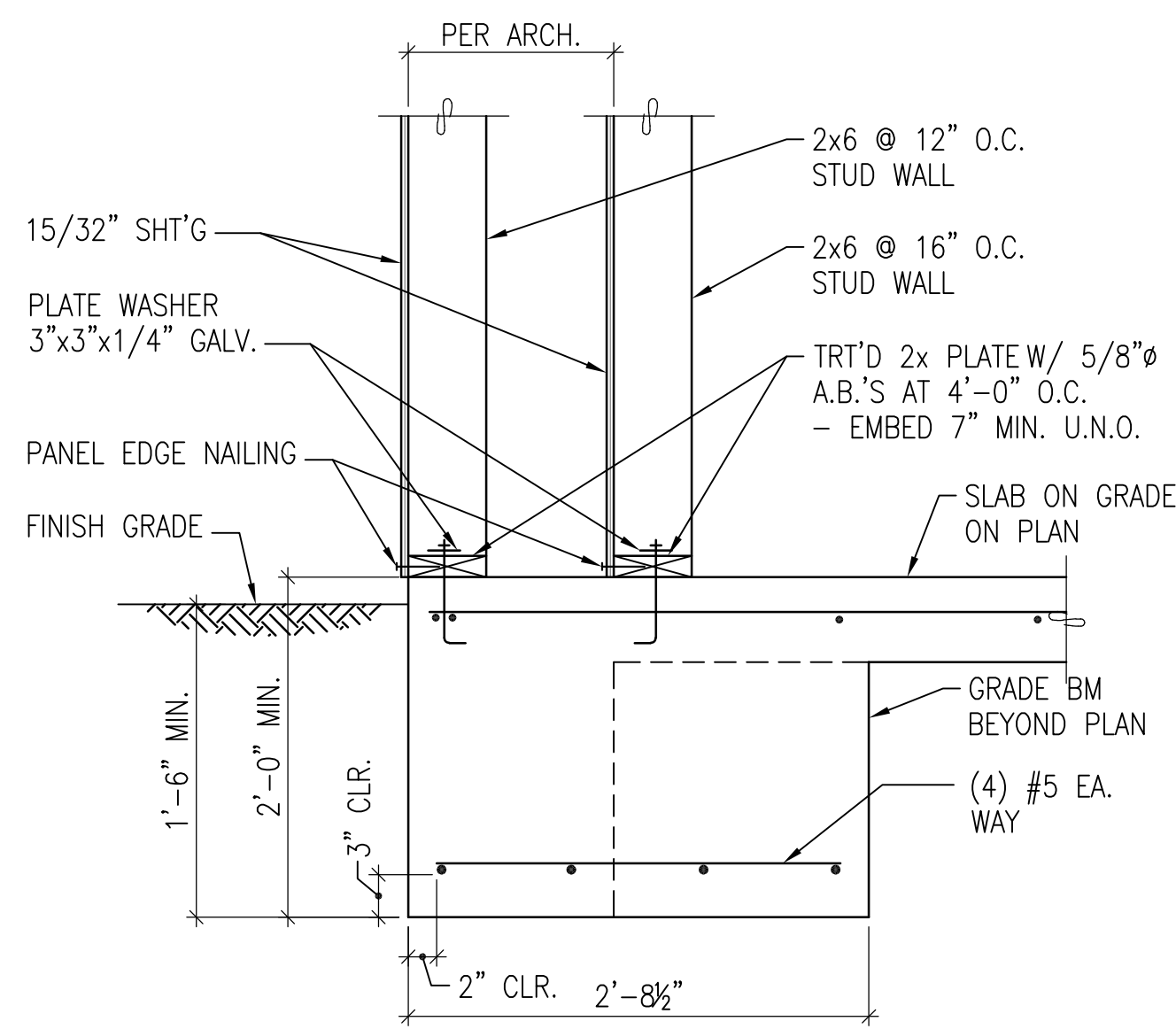
S2.1



TYPICAL FOUNDATION ANCHOR ROD HOLDOWN

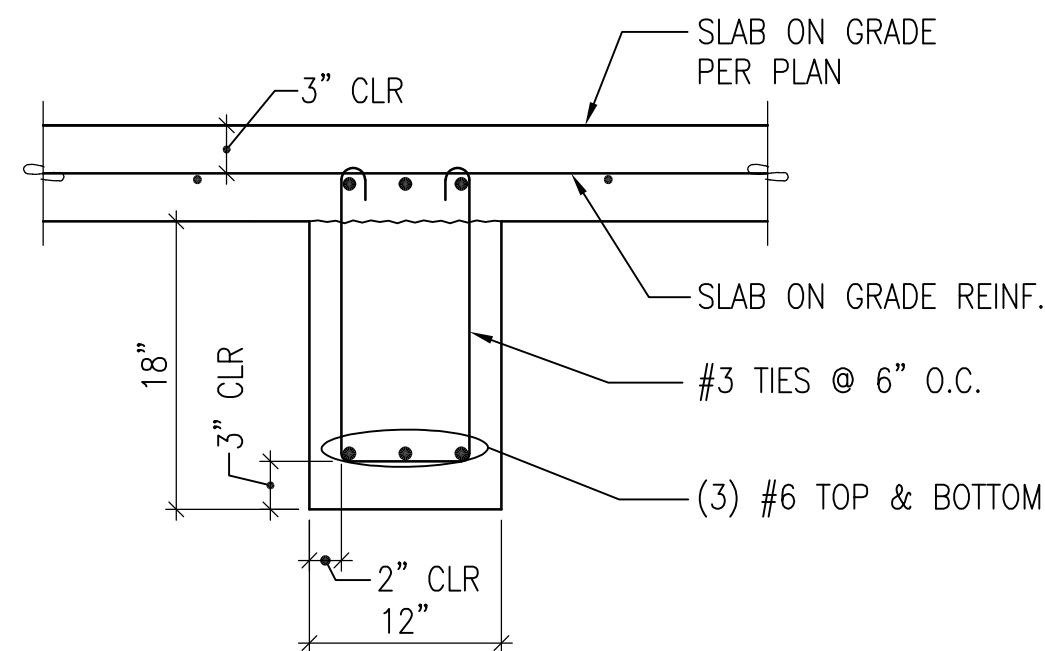
DETAIL

NO SCALE



SECTION

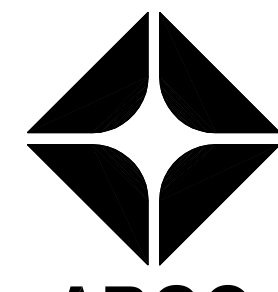
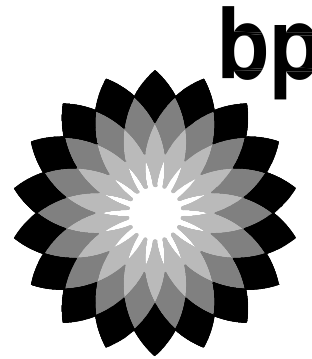
1"=1'-0"



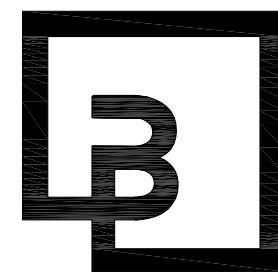
SECTION

1"=1'-0"

CLIENT:



BP WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
-	10/17/23	BD	SET
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI

**3400 am/pm
FUEL CANOPY w/ 6 MPD's**

SITE ADDRESS:

**1402 S MERIDIAN
PUYALLUP, WA 98371**

FACILITY #7184

DESIGNED BY: **SJW** ALLIANCE ZADON:

CHECKED BY: **SJW** BP REPM:

DRAWN BY: **SAA** ALLIANCE PM:

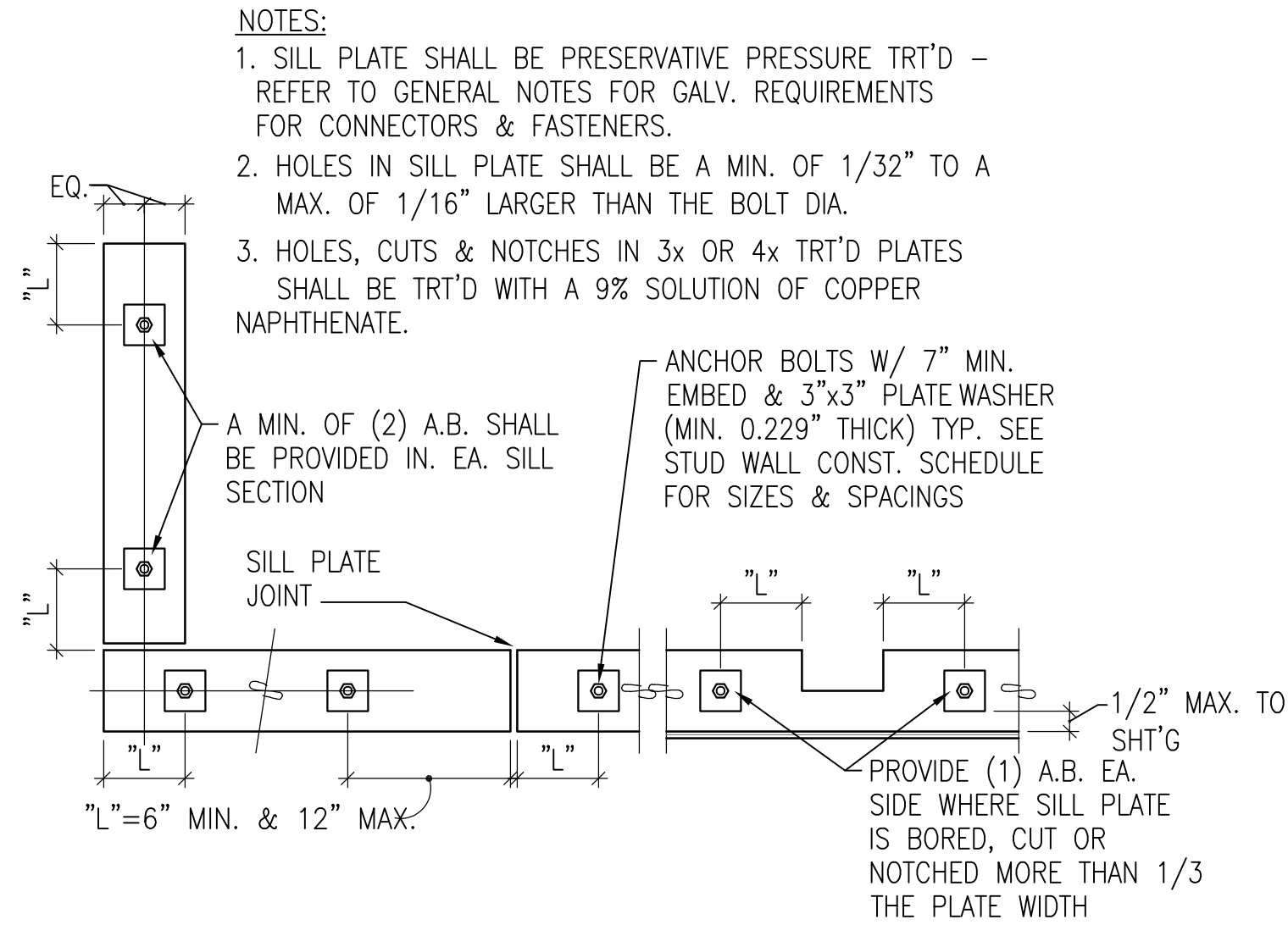
VERSION: **-** PROJECT NO: **21730**

DRAWING TITLE:

DETAILS

SHEET NO:

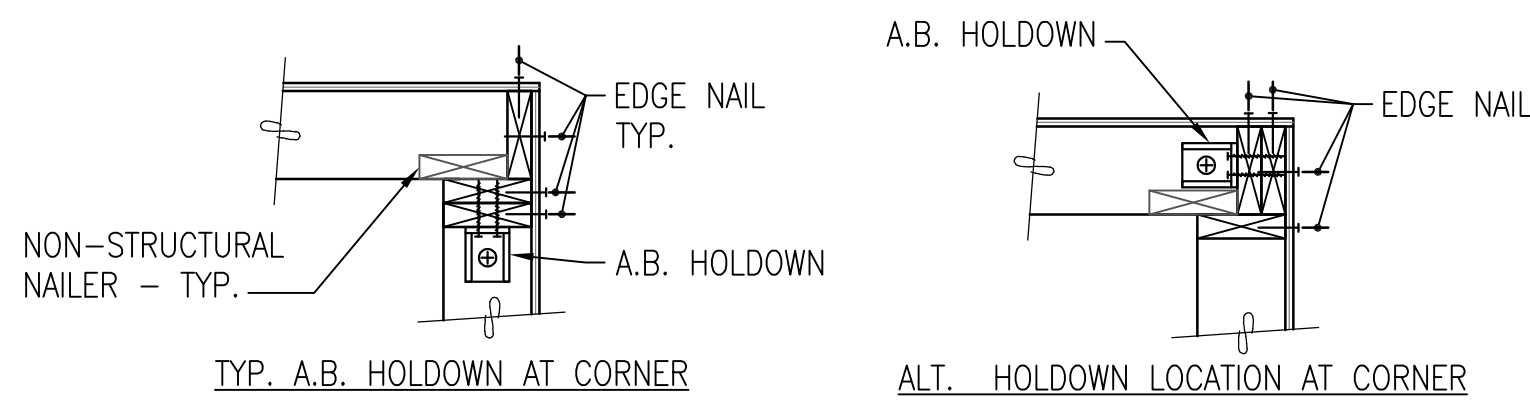
S2.2



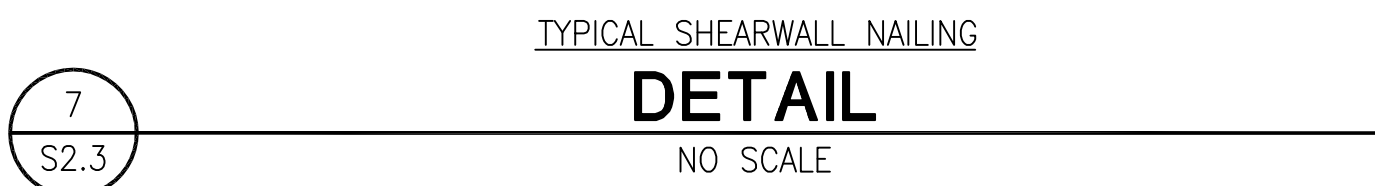
TYPICAL SILL PLATE ANCHORAGE



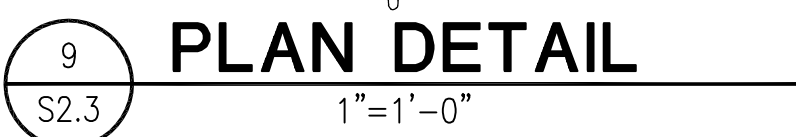
TYPICAL STUD WALL CONSTRUCTION AT HEADER



TYPICAL CROSSWALL HOLDOWN LOCATIONS



TYPICAL SHEARWALL NAILING



TYPICAL BUILT-UP COLUMN AT BEAM
PERPENDICULAR TO WALL



SECTION

TABLE 2 - STUD SPACING REQUIREMENTS			<p>FIRST CHARACTER INDICATES SPECIAL SHEAR WALL REQUIREMENTS PER TABLE 1</p> <p>SECOND CHARACTER INDICATES SPECIAL STUD SPACING PER TABLE 2</p> <p><u>NOTES:</u></p> <p>1. INDICATES SPECIAL STRUCTURAL WALL TYPE. ALL WALLS SHOWN ON STRUCTURAL DRAWINGS ARE 2x6 AT 16" O.C. UNLESS</p>
MARK	STUD SIZE & SPACING	# STUDS REQ'D AT MEMBER BRG	
1	2x6 @ 16" O.C.	1	<p>XX INDICATES SPECIAL STRUCTURAL WALL TYPE. ALL WALLS SHOWN ON STRUCTURAL DRAWINGS ARE 2x6 AT 16" O.C. UNLESS</p>
2	2x6 @ 16" O.C.	2 (7)	

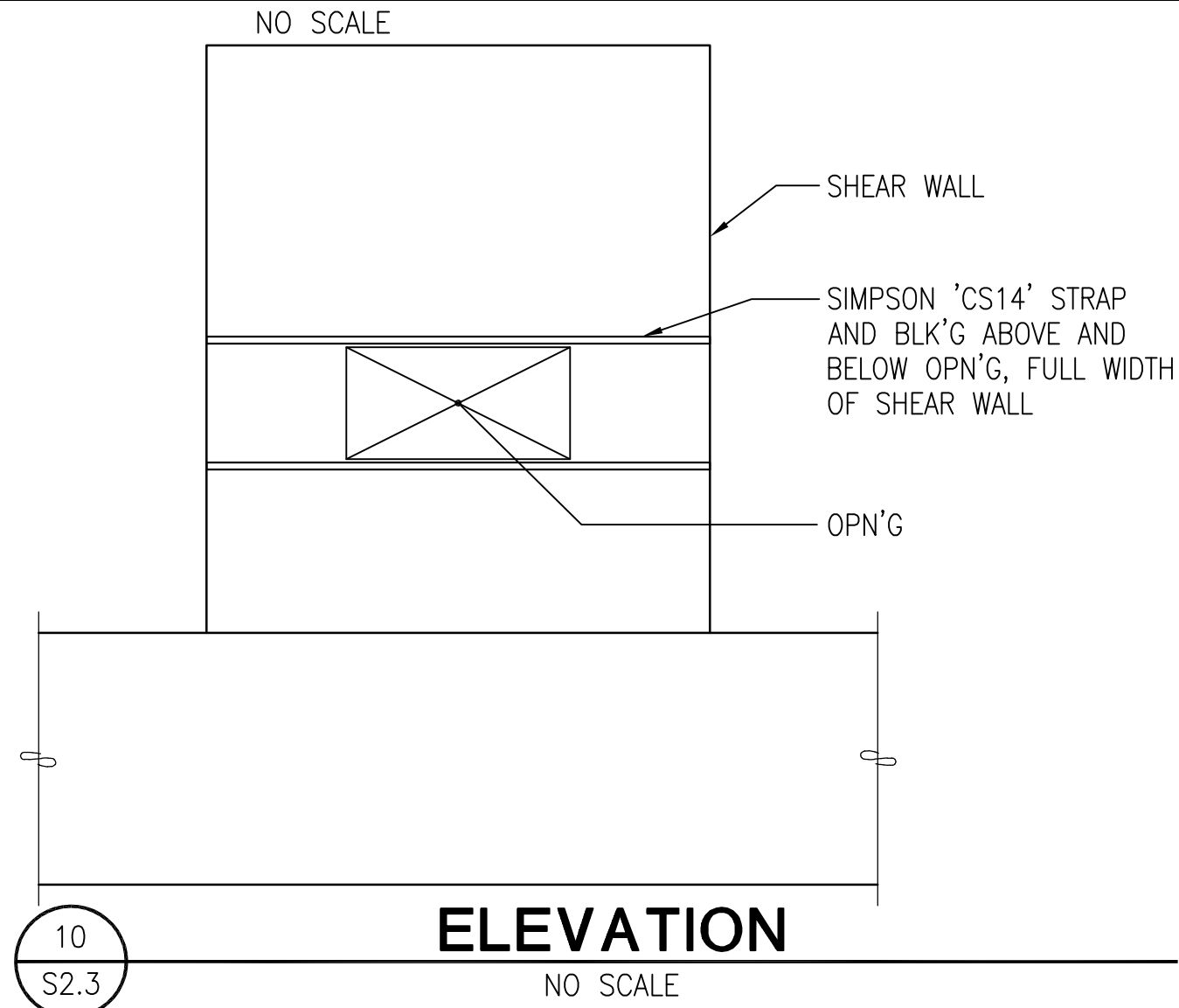
FIRST CHARACTER INDICATES SPECIAL SHEAR WALL REQUIREMENTS PER TABLE 1

NOTES:

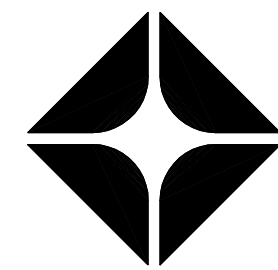
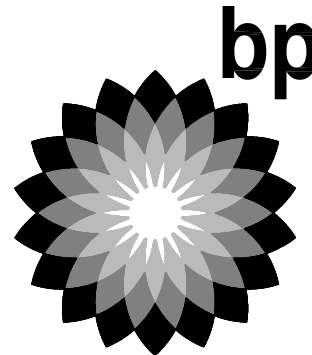
1. **XX** INDICATES SPECIAL STRUCTURAL WALL TYPE. ALL WALLS SHOWN ON STRUCTURAL DRAWINGS ARE 2x6 AT 16" O.C. UNLESS DESIGNATED SPECIAL. STUD LAYOUT SHALL MATCH FRM# MEMBER LAYOUT ABOVE WHERE APPLICABLE. ALL EXTERIOR WALLS SHALL HAVE 15/32" WOOD SHEATHING AND BE NAILED WITH 8d AT 6" O.C. AT EDGES AND 12" O.C. IN FIELD UNLESS DESIGNATED SPECIAL.

2. ALL EXTERIOR WALLS AND AL DESIGNATED SHEAR WALLS SHALL BE BLOCKED AT ALL SHEATHING EDGES. EDGE NAILING APPLIES TO ALL TOP AND BOTTOM PLATES, VERTICAL JOINTS, HORIZONTAL BLOCKED JOINTS, WALL CORNERS, AND HOLD-DOWN ANCHORED STUDS.
3. WHERE BEAMS OR HEADERS FRAME INTO WALLS AND A COLUMN IS NOT CALLED OUT, PROVIDE BUILT-UP COLUMN
4. PROVIDE 3x OR DOUBLE 2x MEMBERS FACE NAILED PER 7/52.3 AT ALL ABUTTING PANEL EDGES WHERE INDICATED.
5. PROVIDE 3x SILL PLATE WHERE INDICATED.
6. WHERE SOLID SAWN STUD LENGTH CANNOT BE OBTAINED, SCL STUDS MAY BE SUBSTITUTED. SOLID SAWN FRAMING MAY NOT BE SUBSTITUTED FOR SPECIFIED SCL FRAMING.
7. PROVIDE (3) 2x6 FULL HEIGHT STUDS @ 8'-0" O.C. FOR PARAPET BRACING. PROVIDE (4) 2x6 FULL HEIGHT STUDS AT 5'-4" AT WALLS TALLER THAN 20'-0". SEE 1/52.7 & 2/52.7.

SCHEDULE

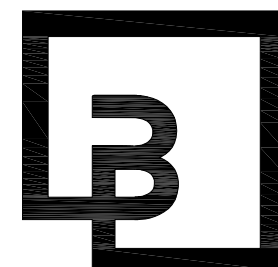


ELEVATION



ARCO

BP WEST COAST PRODUCTS, LLC



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Consulting Engineers, Inc.**

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SEAL



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

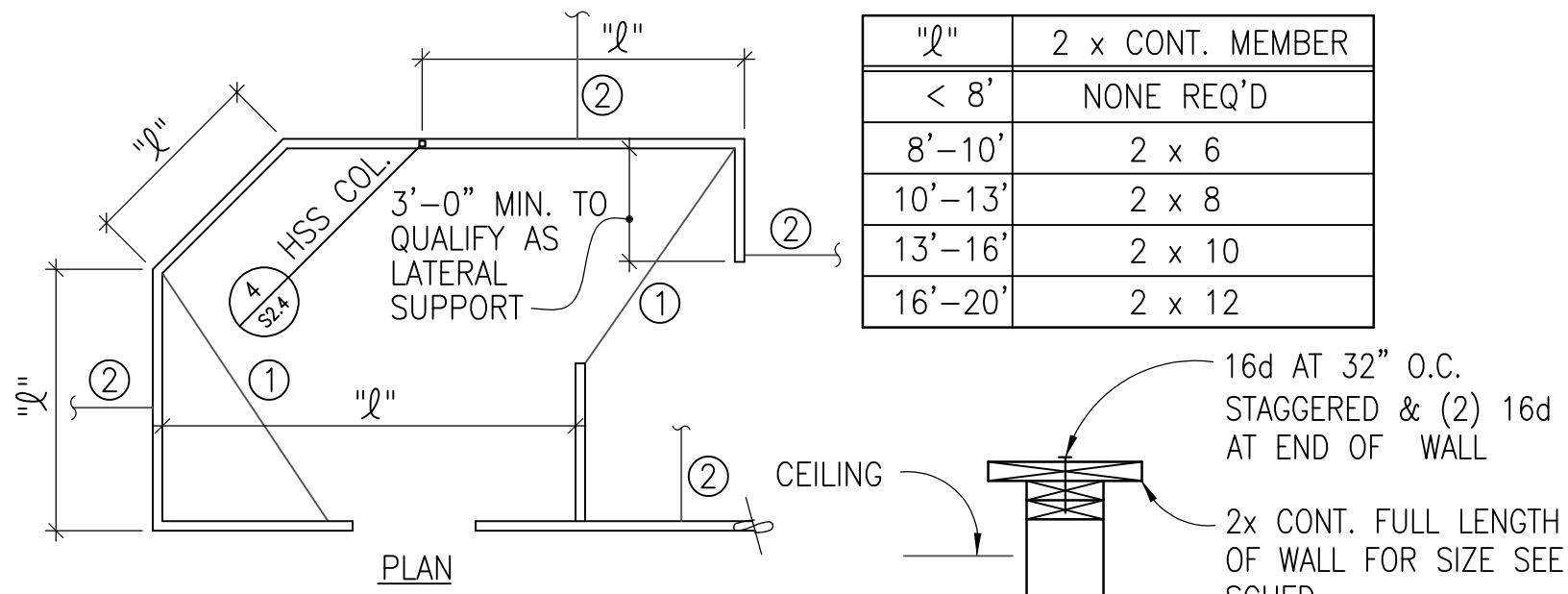
DESIGNED BY:	SJW	ALLIANCE Z&DM:
CHECKED BY:	SJW	BP REPM:
DRAWN BY:	SAA	ALLIANCE PM:
VERSION:	- -	PROJECT NO: 2173

DRAWING TITLE:

DETAILS

SHEET NO.

S2.3

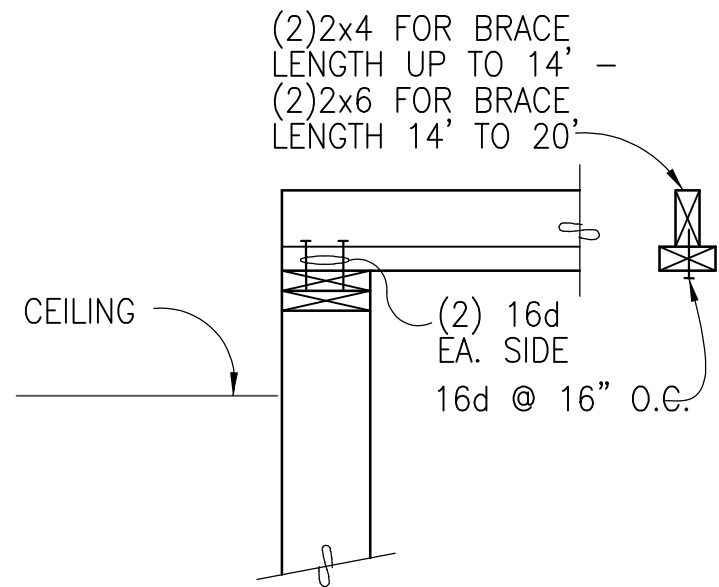


- NOTES:
- THIS PLAN IS AN EXAMPLE ONLY IT DOES NOT REPRESENT A SPECIFIC WALL
 - "l" INDICATES UNBRACED LENGTH OF WALLS.
 - AT CONTRACTORS OPTION IN LIEU OF EXTRA TOP PLATE:
 - INDICATES HORIZ BRACE EXTENDING TO ADJACENT CORNER SEE 2/S2.4.
 - INDICATES BRACE UP TO ROOF STRUCTURE SEE 3/S2.4, & 5/S2.4.

TYPICAL LATERAL SUPPORT FOR INTERIOR NON-BEARING WALLS NOT EXTENDING TO STRUCTURE

1
S2.4

DETAIL
NO SCALE

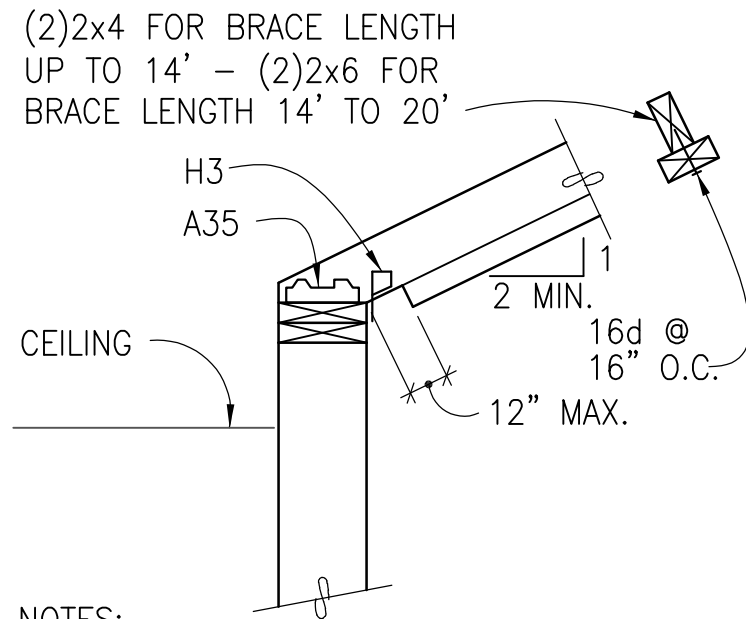


- NOTES:
- MAX. SPACING OF BRACES = 10'-0"
 - BRACES NOT REQ'D WITHIN 8'-0" OF OTHER LATERAL WALL SUPPORT, CORNERS & INTERSECTIONS

TYPICAL TOP OF WALL BRACE (HORIZONTAL)

2
S2.4

SECTION
NO SCALE

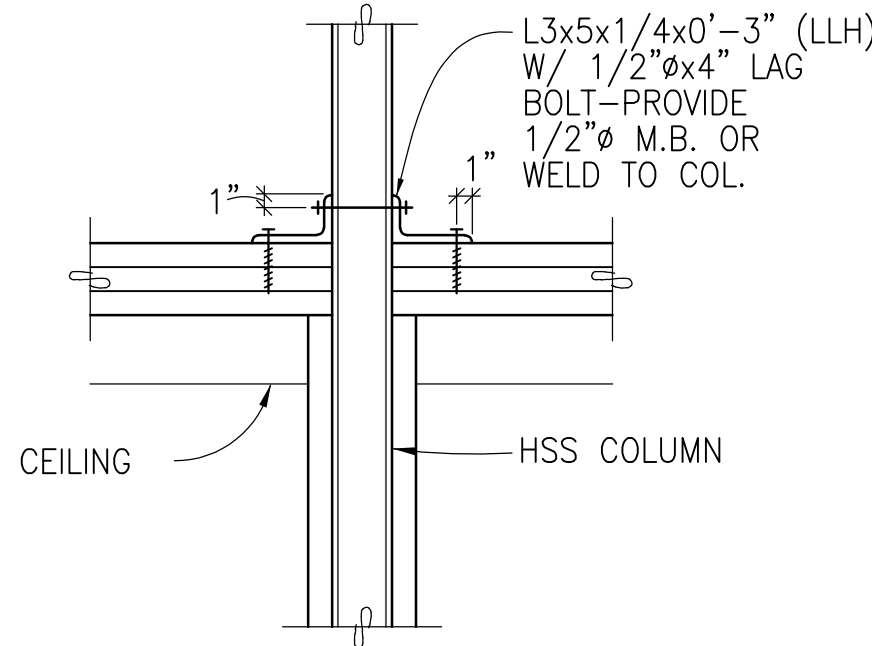


- NOTES:
- MAX. SPACING OF BRACES = 10'-0"
 - BRACES NOT REQ'D WITHIN 8'-0" OF OTHER LATERAL WALL SUPPORT, CORNERS & INTERSECTIONS

TYPICAL TOP OF WALL BRACE UP TO STRUCTURE

3
S2.4

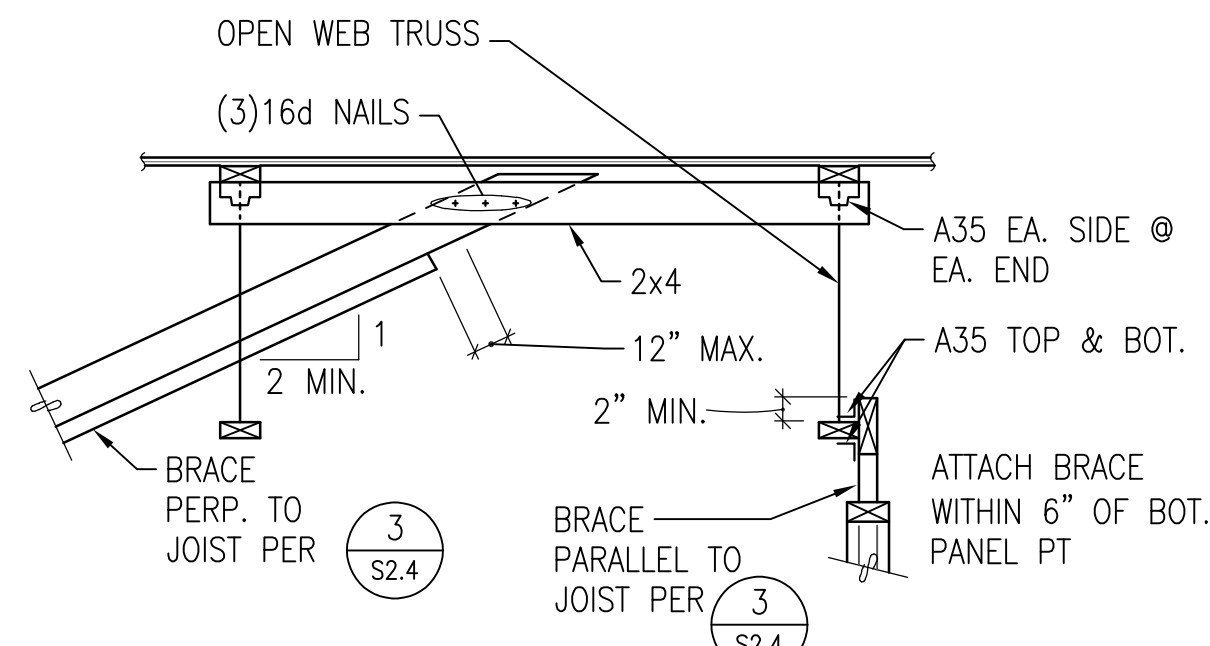
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TYPICAL WALL BRACE AT TUBE STEEL COLUMN

4
S2.4

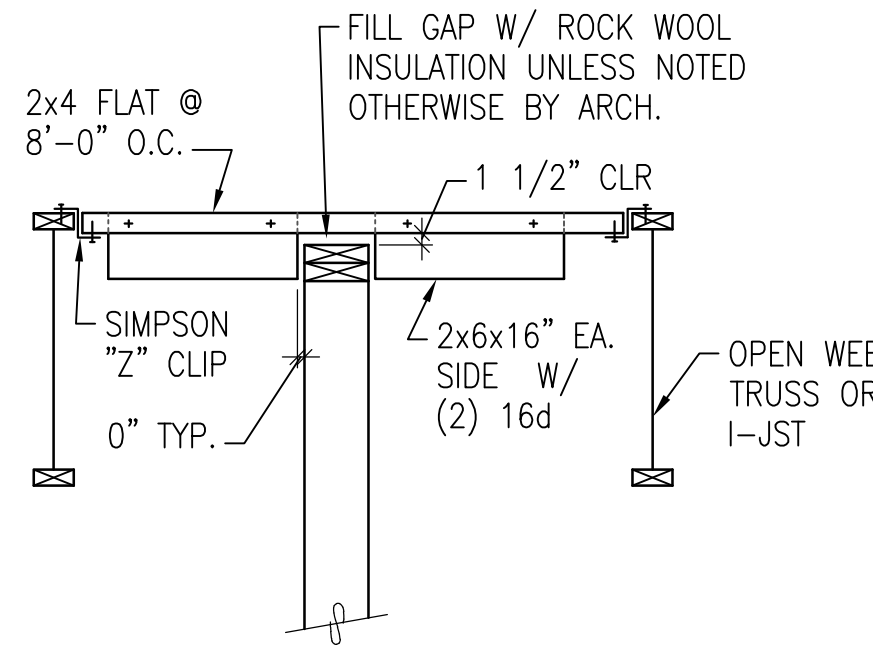
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TYPICAL BRACE CONNECTION TO STRUCTURE

5
S2.4

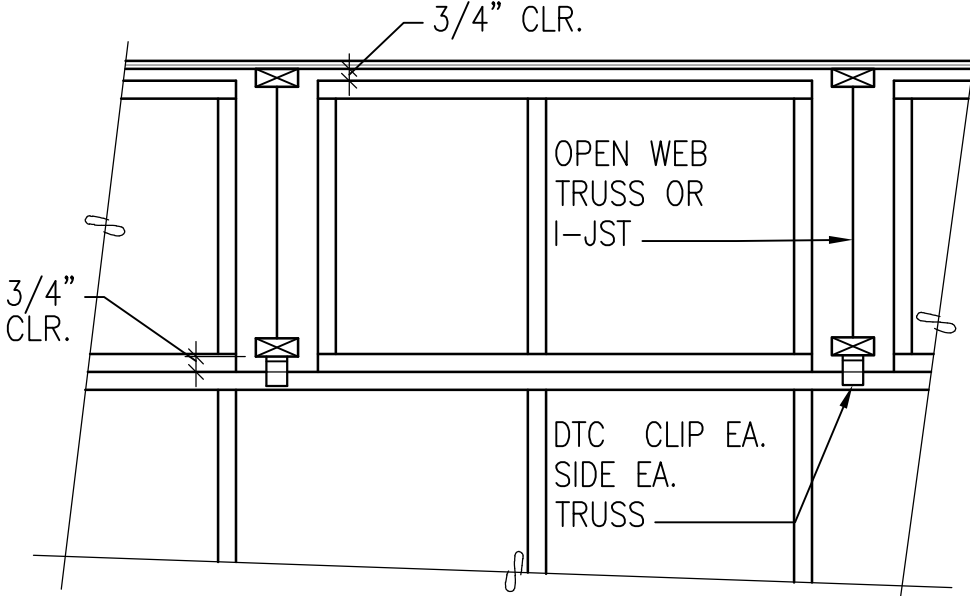
SECTION
NO SCALE



TYPICAL CONNECTION AT TOP OF NON-BEARING WALL EXTENDING TO ROOF STRUCTURE, PARALLEL TO JOIST

6
S2.4

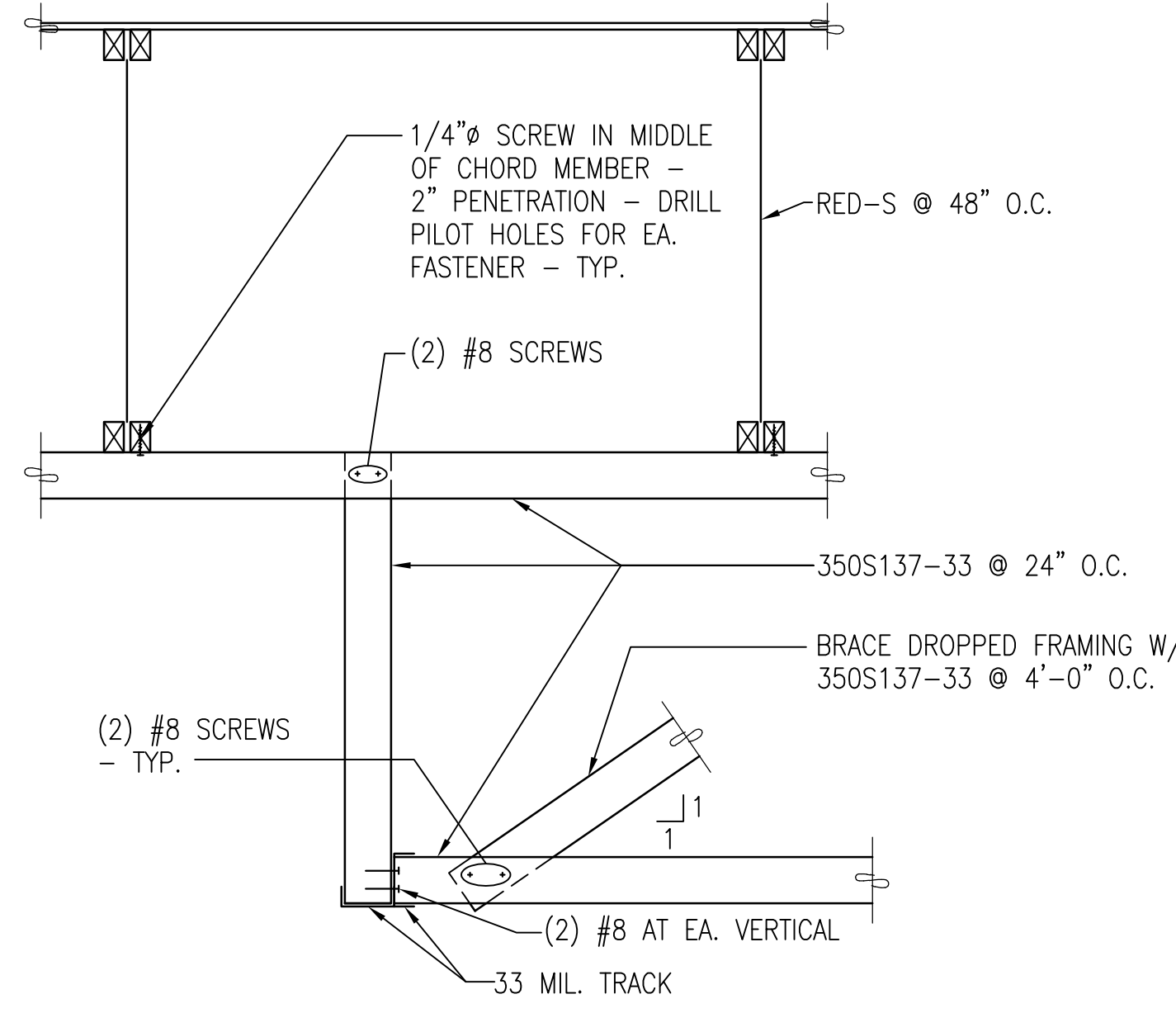
SECTION
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TYPICAL CONNECTION AT TOP OF NON-BEARING WALL EXTENDING TO ROOF STRUCTURE PERPENDICULAR TO JOISTS

7
S2.4

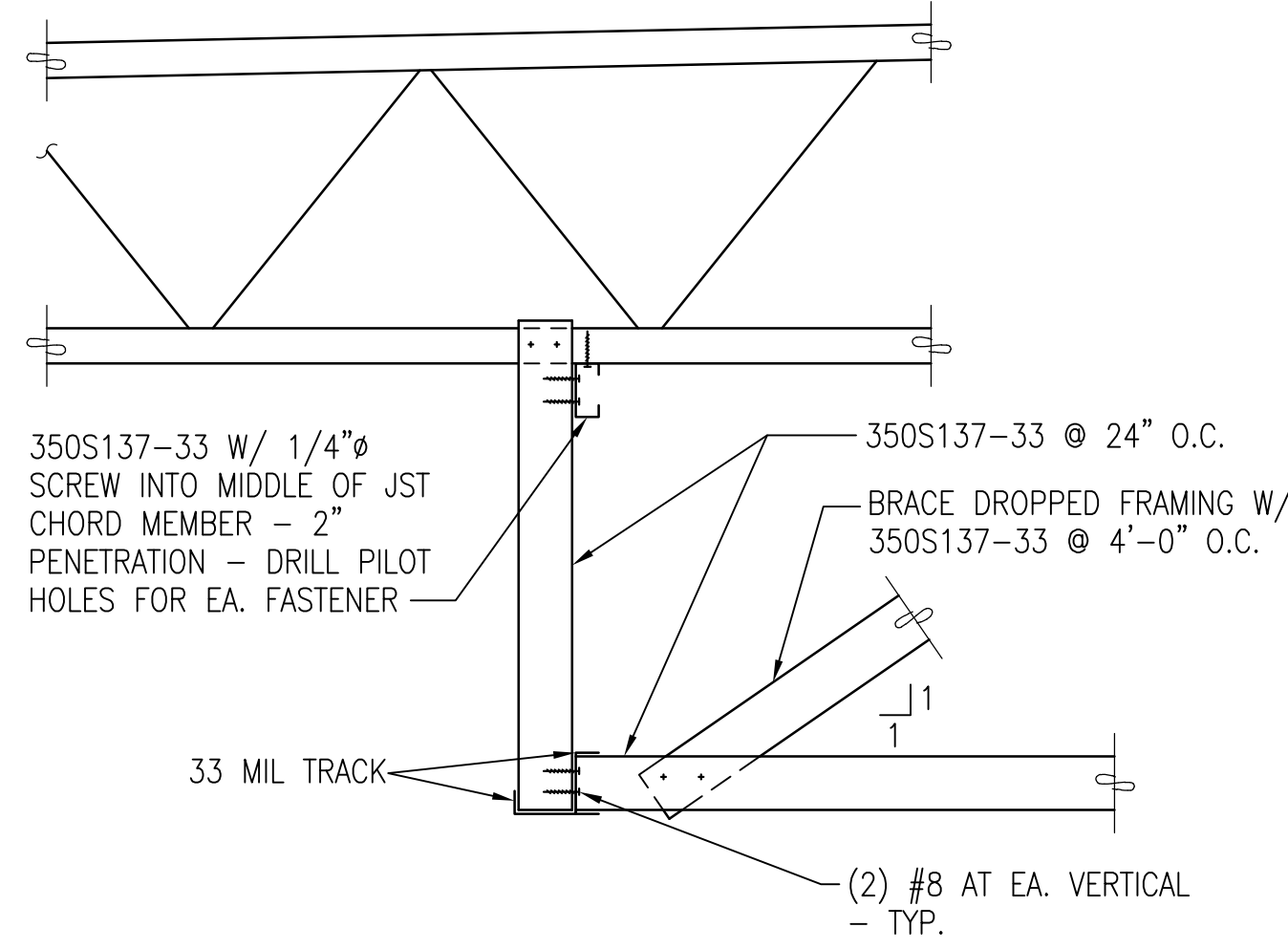
SECTION
NO SCALE



TYPICAL CEILING FRAMING PARALLEL TO JOISTS

8
S2.4

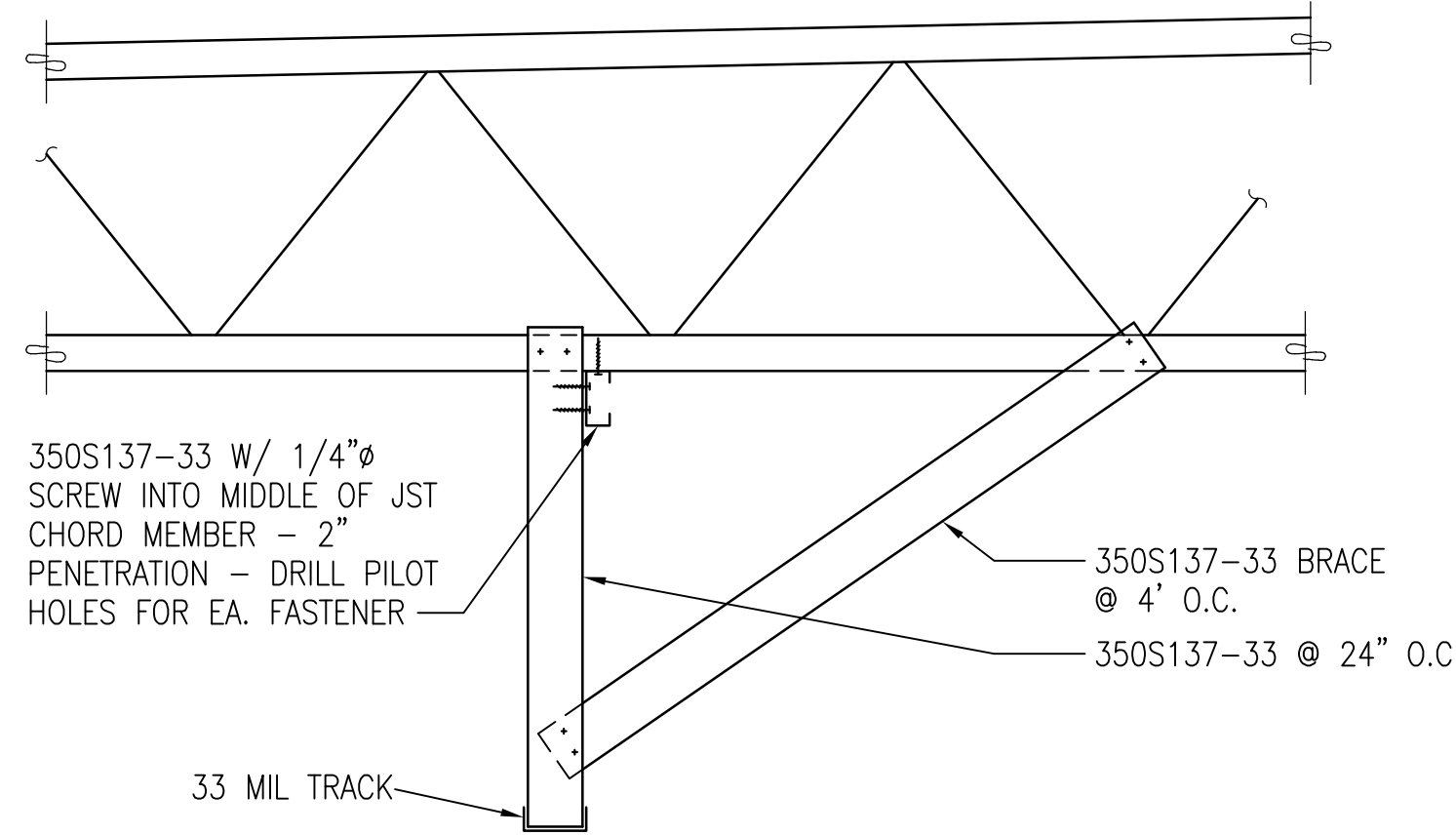
DETAIL
1"=1'-0"



TYPICAL CEILING FRAMING PERPENDICULAR TO JOISTS

9
S2.4

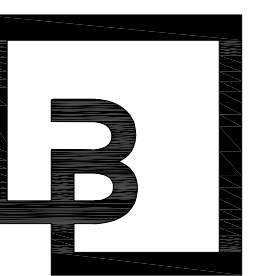
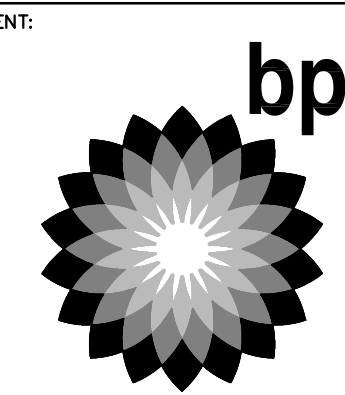
DETAIL
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TYPICAL BULKHEAD FRAMING

10
S2.4

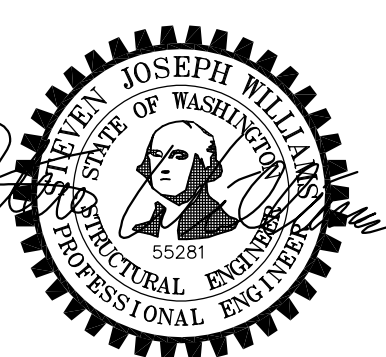
DETAIL
1"=1'-0"



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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

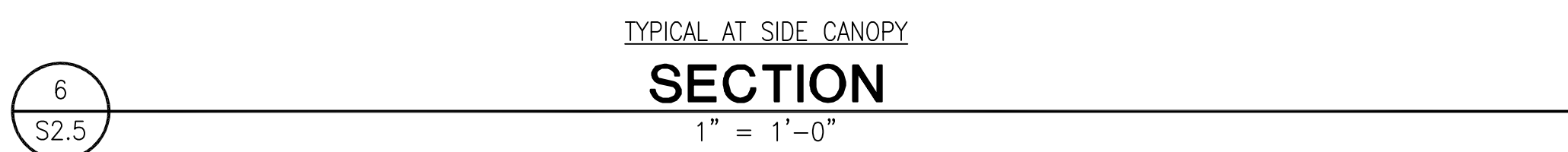
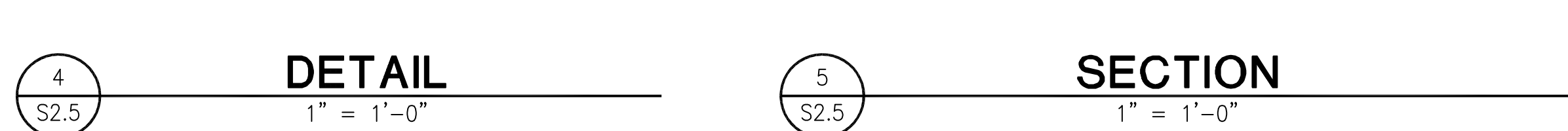
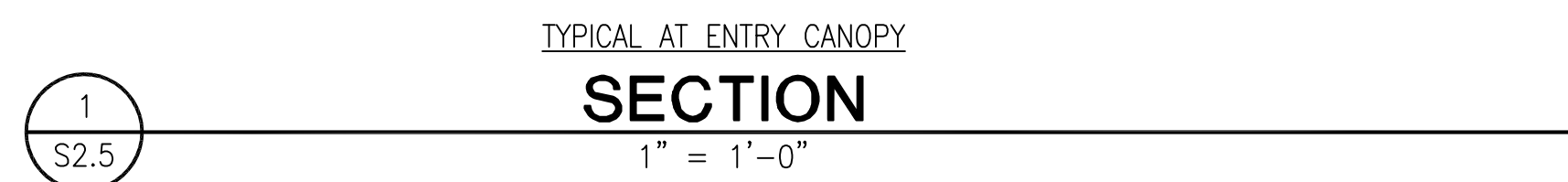
DESIGNED BY: SJW ALLIANCE ZADM:
CHECKED BY: SJW BP REPM:
DRAWN BY: SAA ALLIANCE PM:
VERSION: - PROJECT NO: 21730

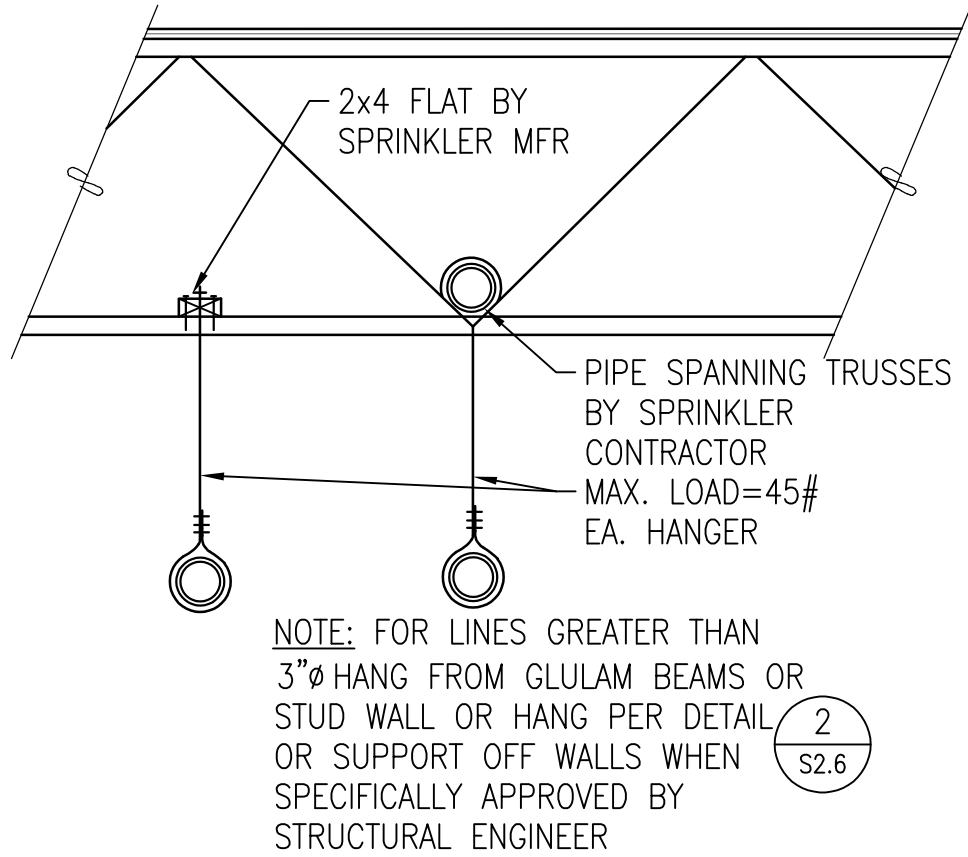
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DETAILS

SHEET NO:

S2.4

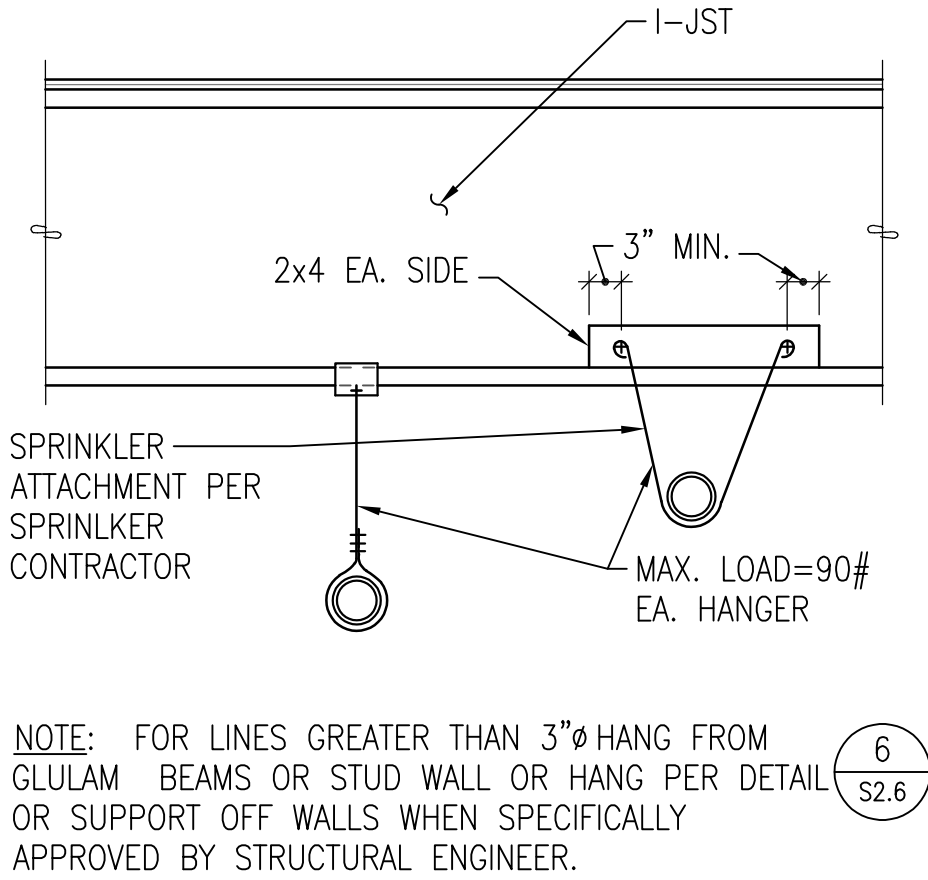




1
S2.6

SECTION

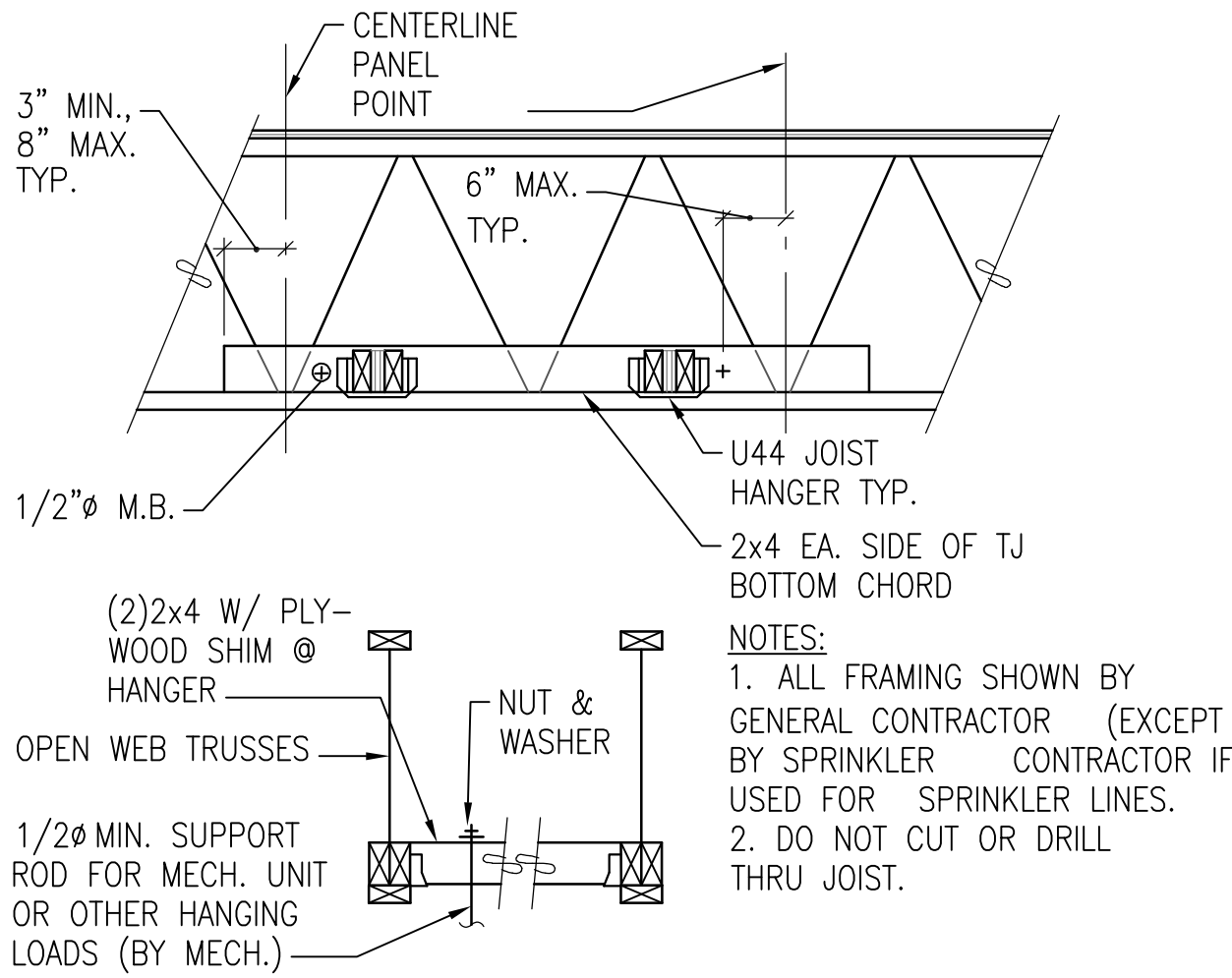
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5
S2.6

SECTION

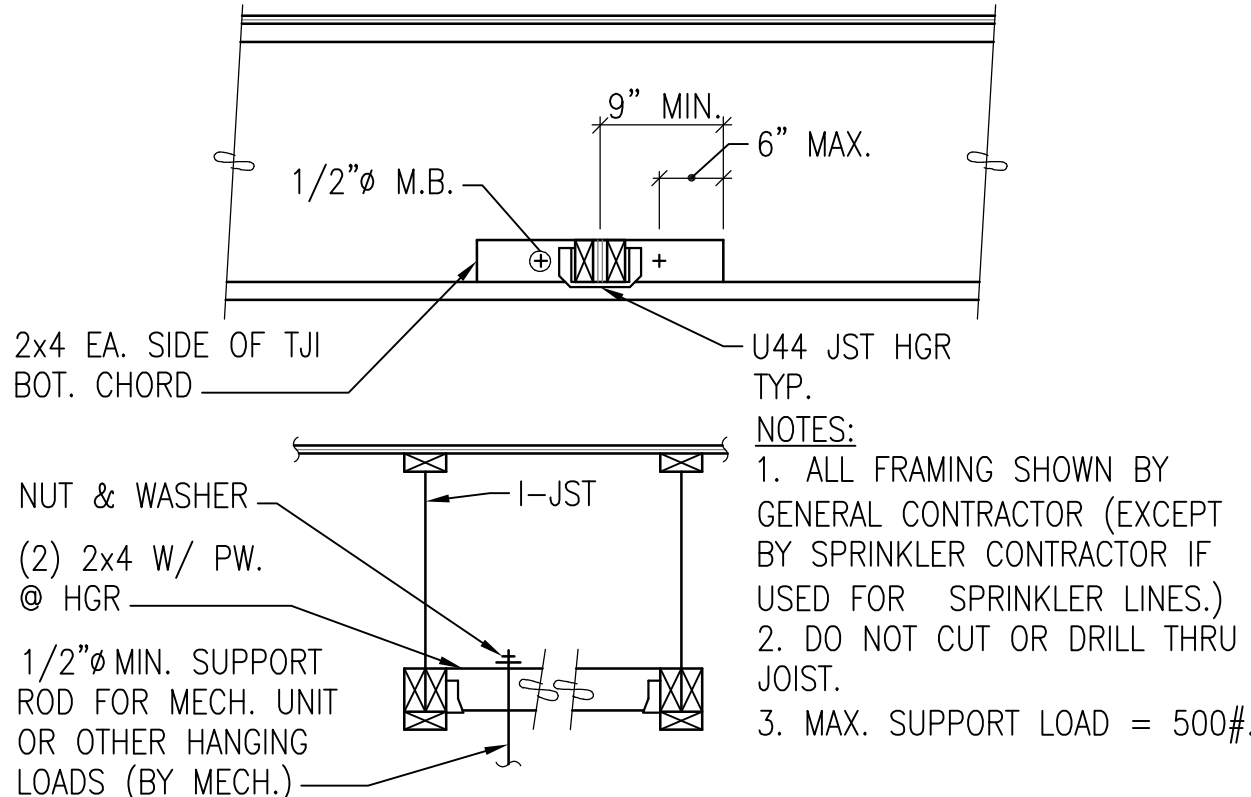
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2
S2.6

SECTION

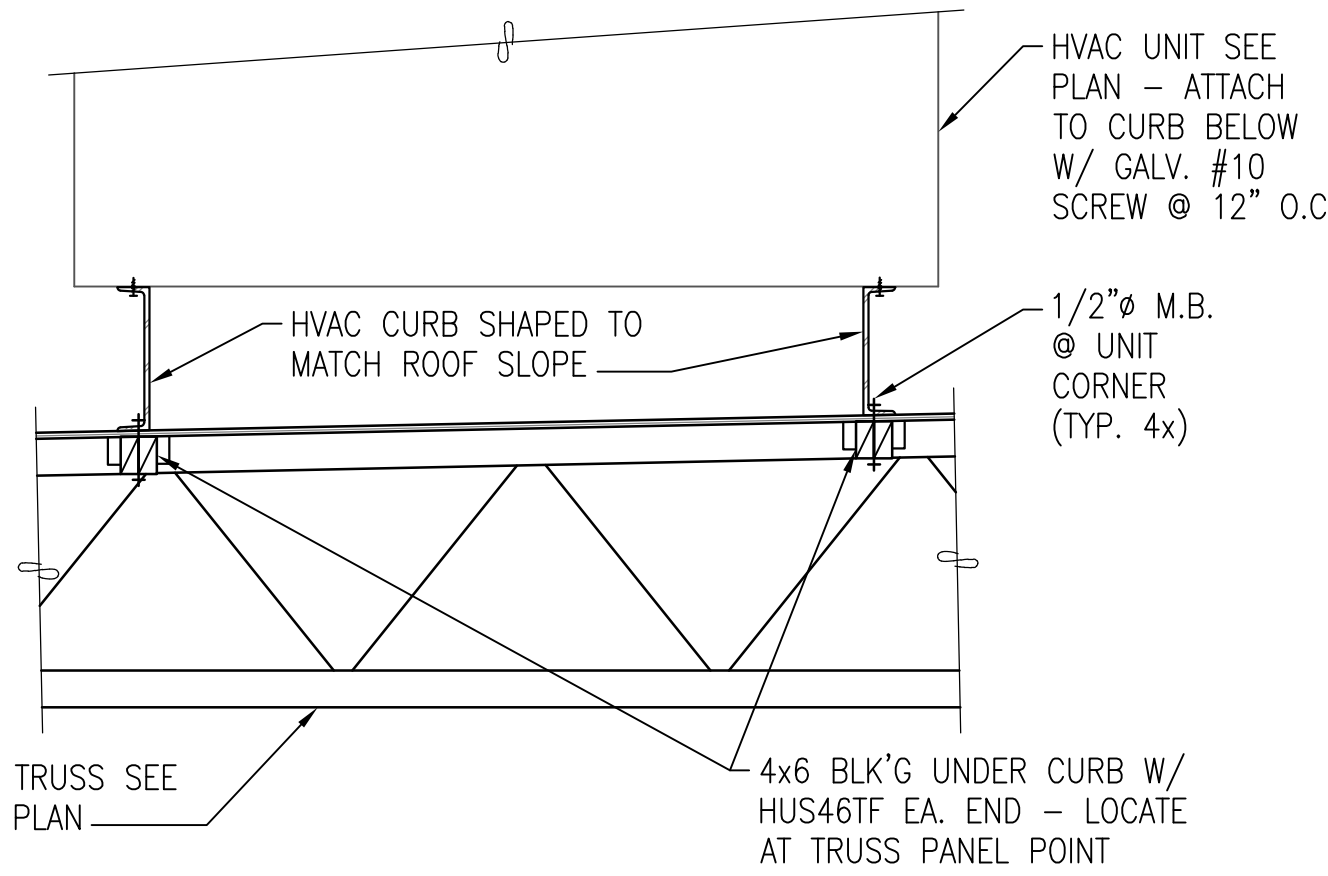
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S2.6

SECTION

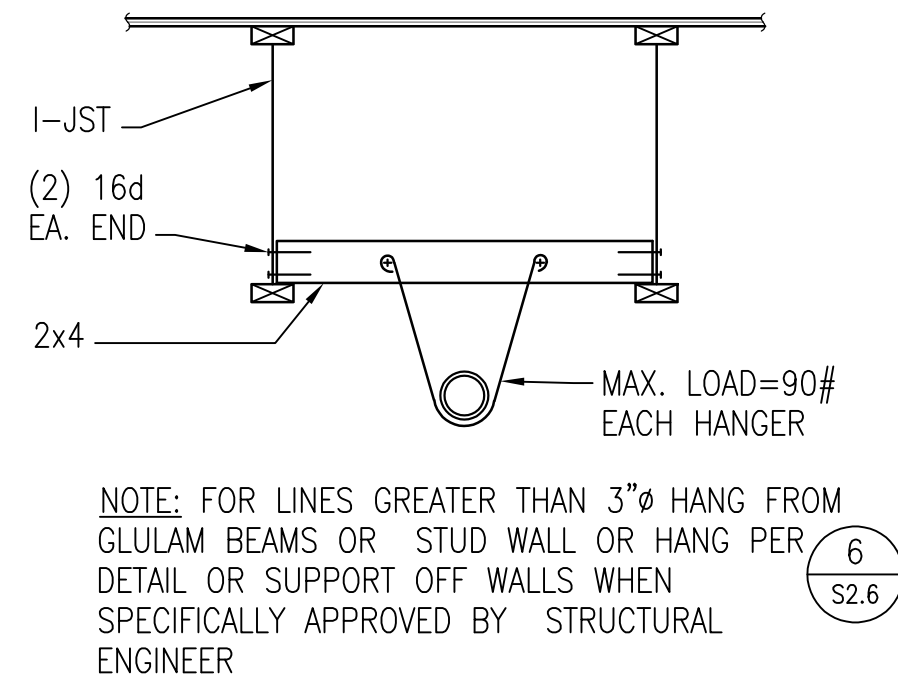
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3
S2.6

SECTION

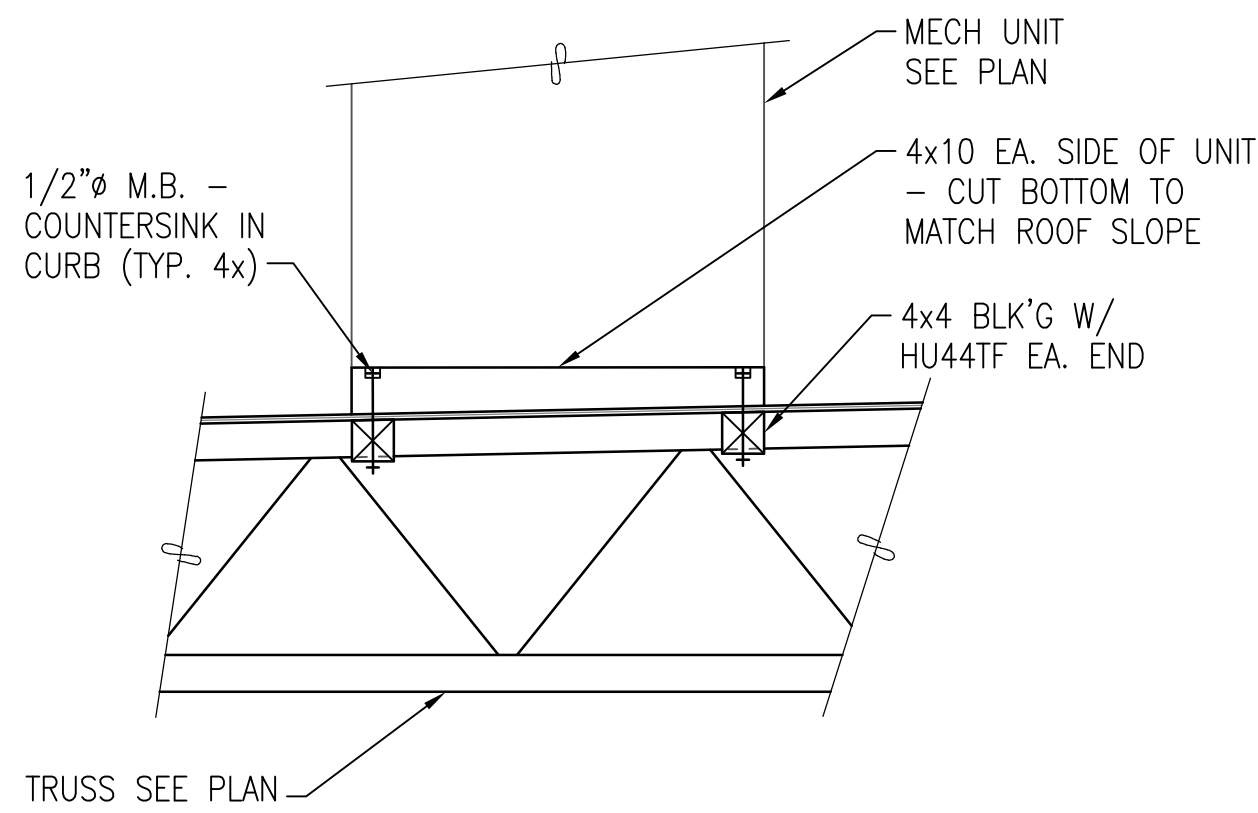
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7
S2.6

SECTION

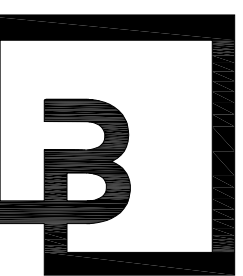
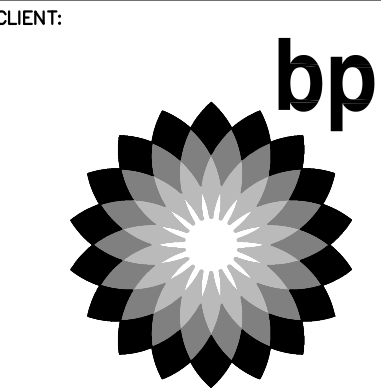
NO SCALE



4
S2.6

SECTION

NO SCALE



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DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98371

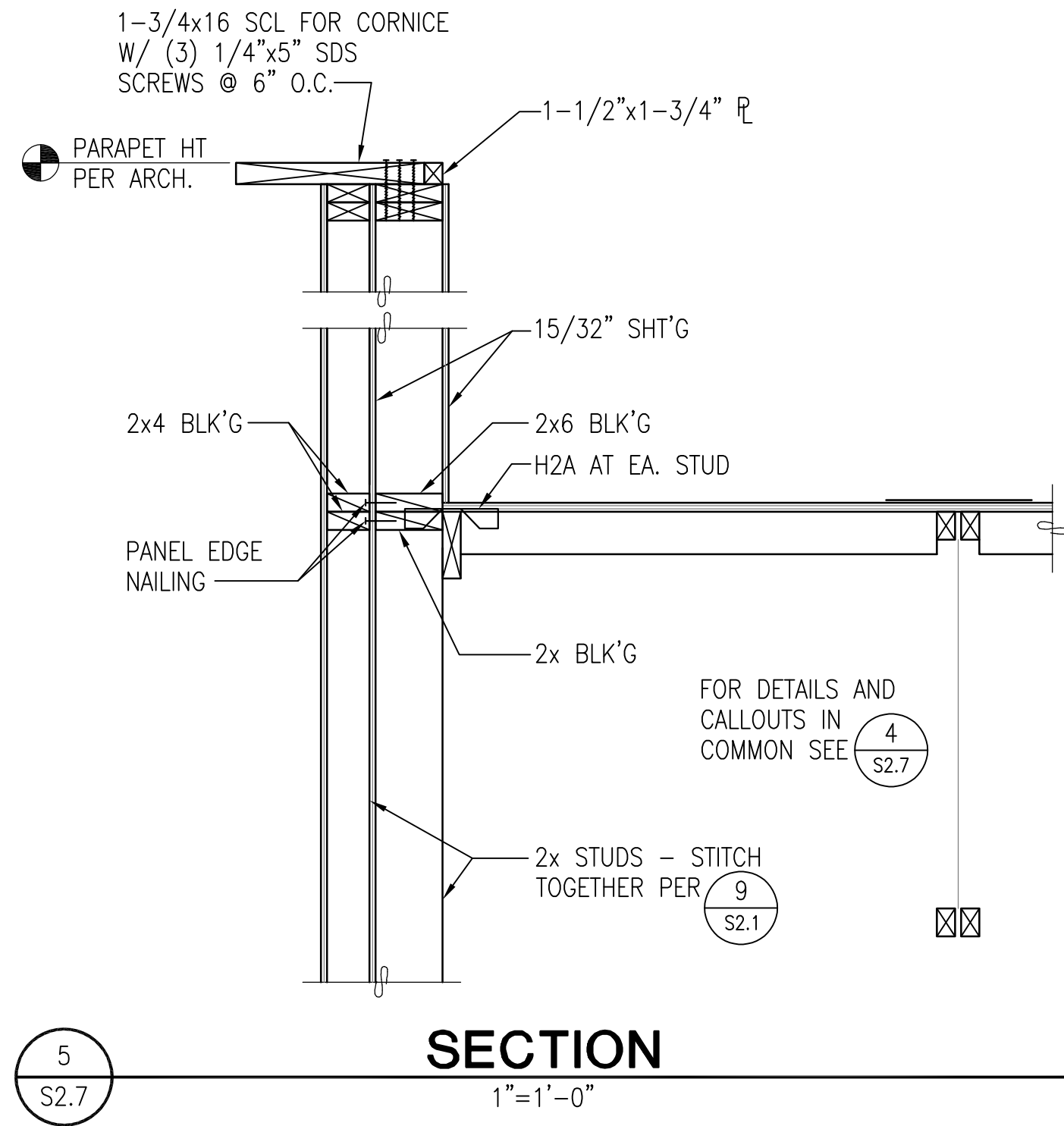
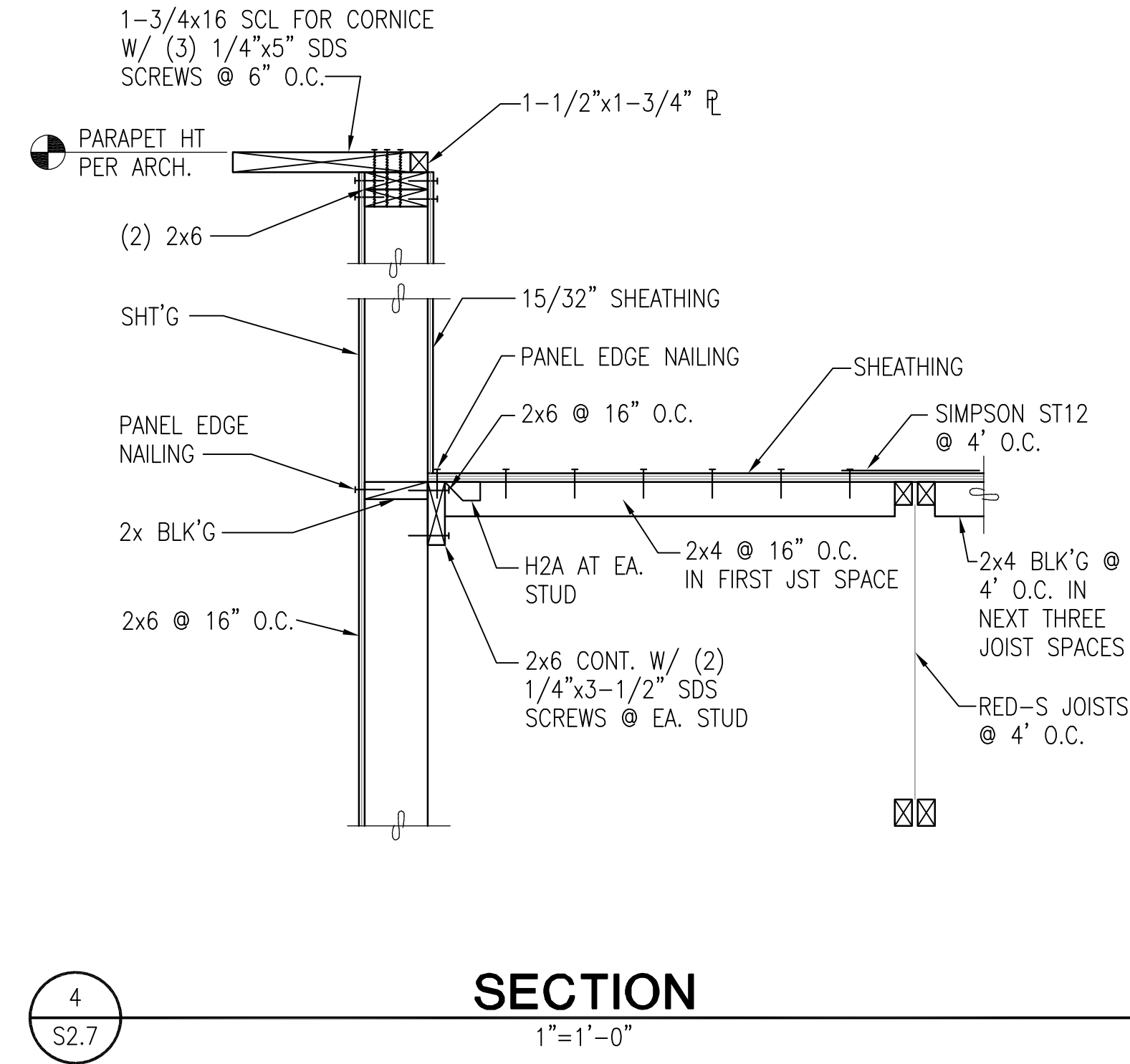
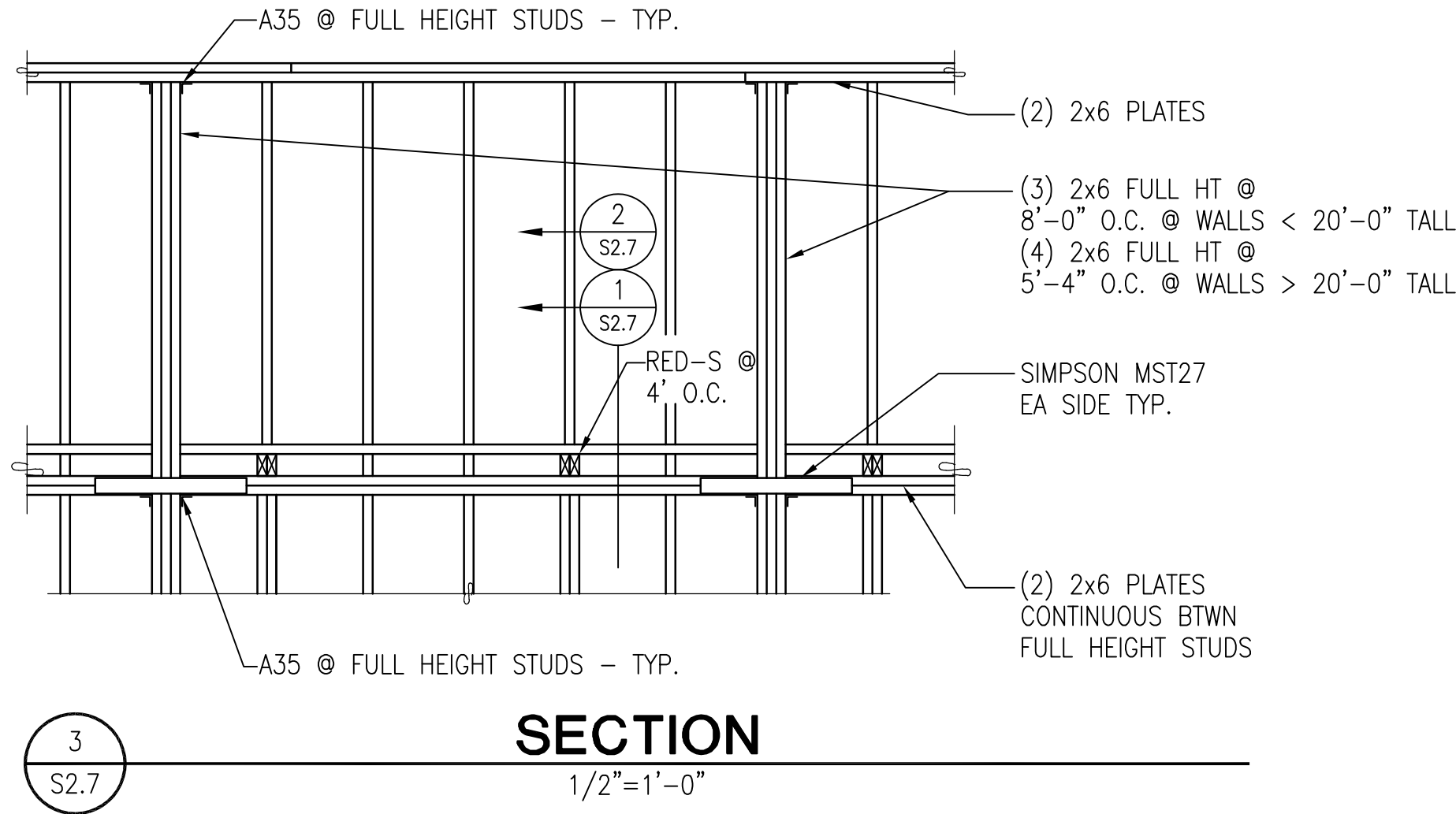
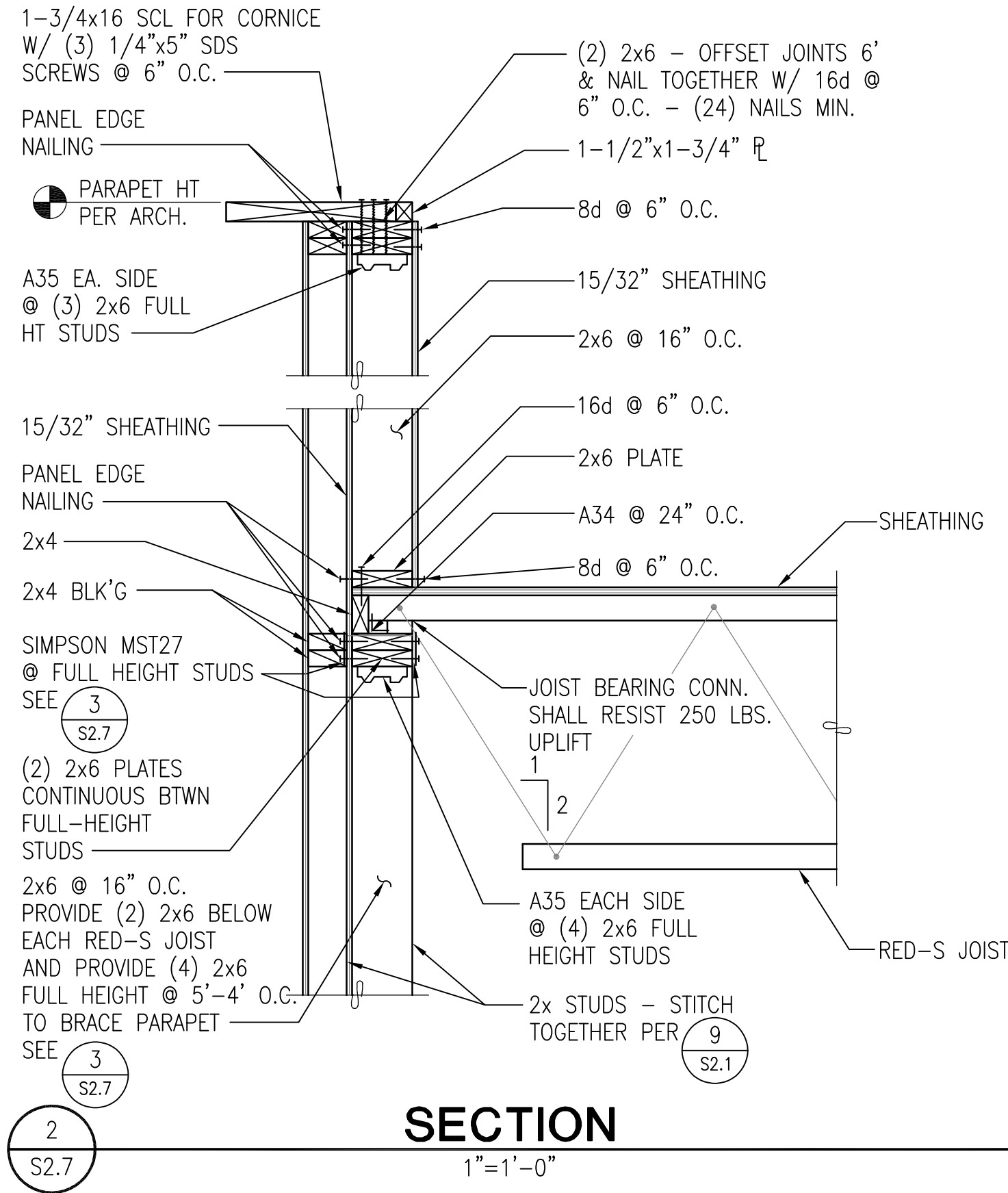
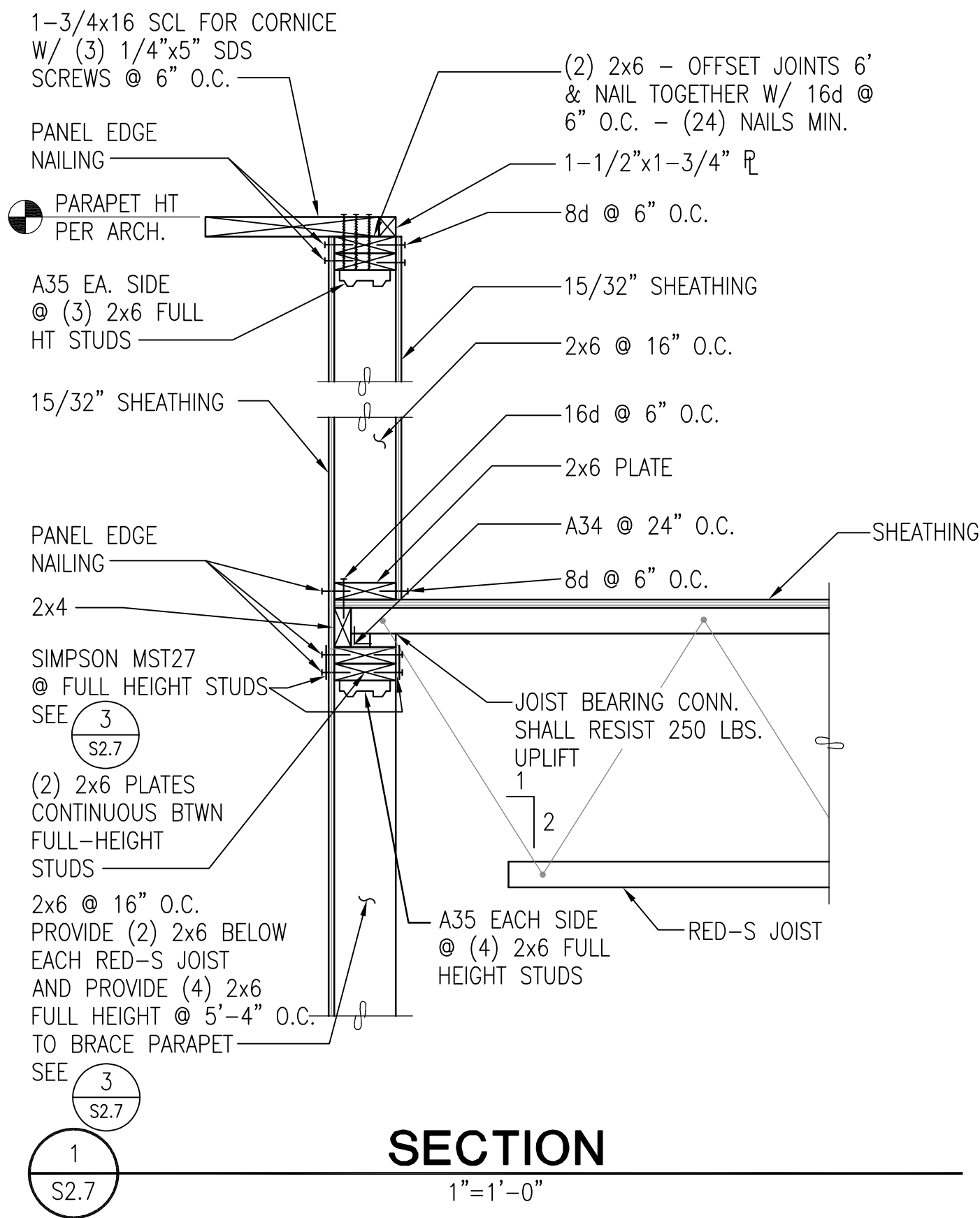
FACILITY #7184

DESIGNED BY:	SJW	ALLIANCE ZADM:
CHECKED BY:	SJW	BP REPM:
DRAWN BY:	SAA	ALLIANCE PM:
VERSION:	-	PROJECT NO:
		21730

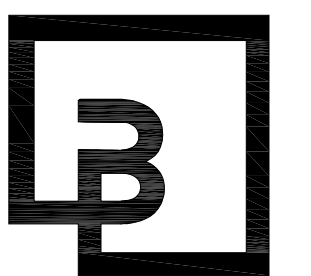
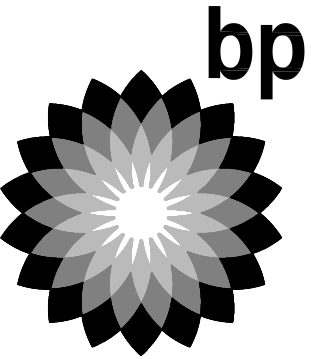
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DETAILS

SHEET NO:

S2.6



CLIENT:

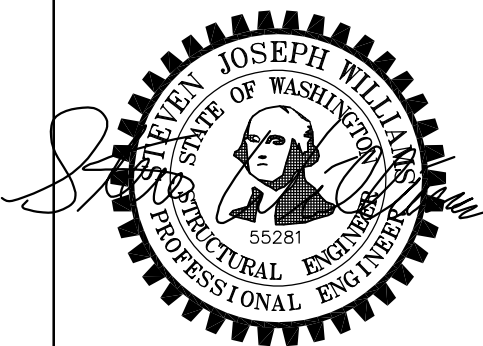


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NO.	DATE	REVISION	DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI

**3400 am/pm
FUEL CANOPY w/ 6 MPD's**

SITE ADDRESS:

**1402 S MERIDIAN
PUYALLUP, WA 98371**

FACILITY #7184

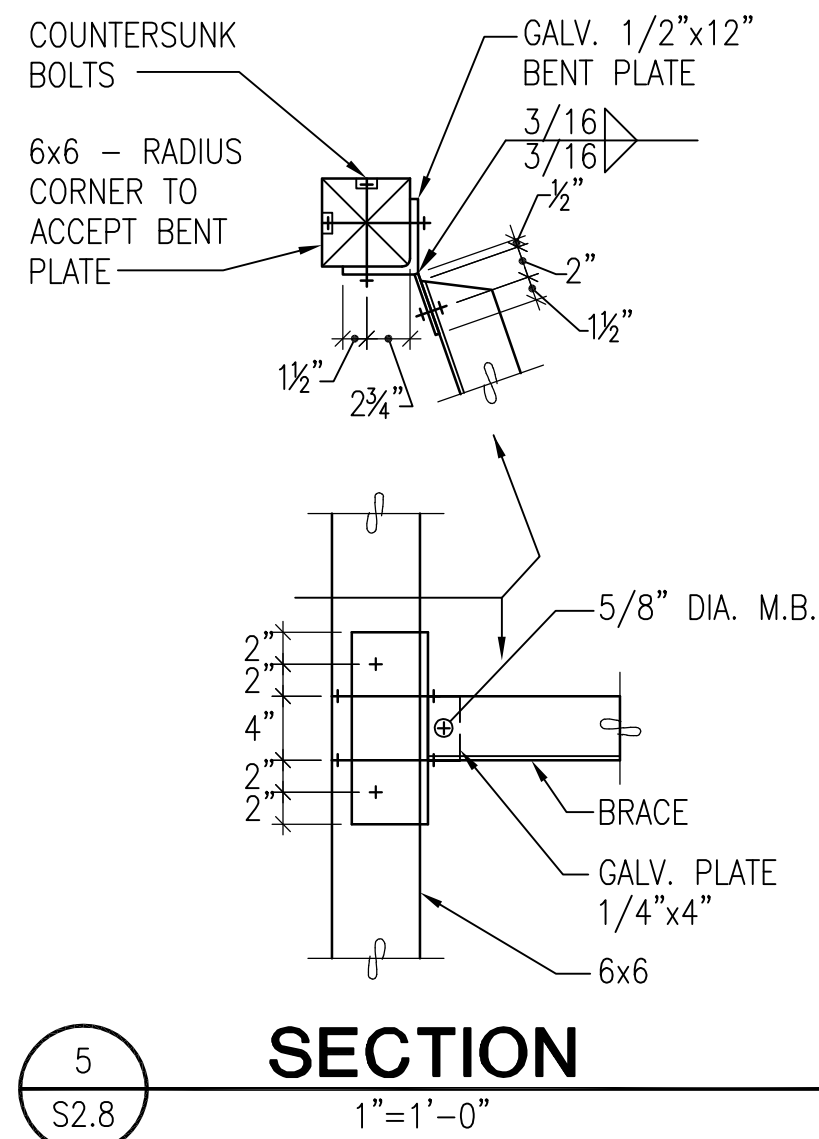
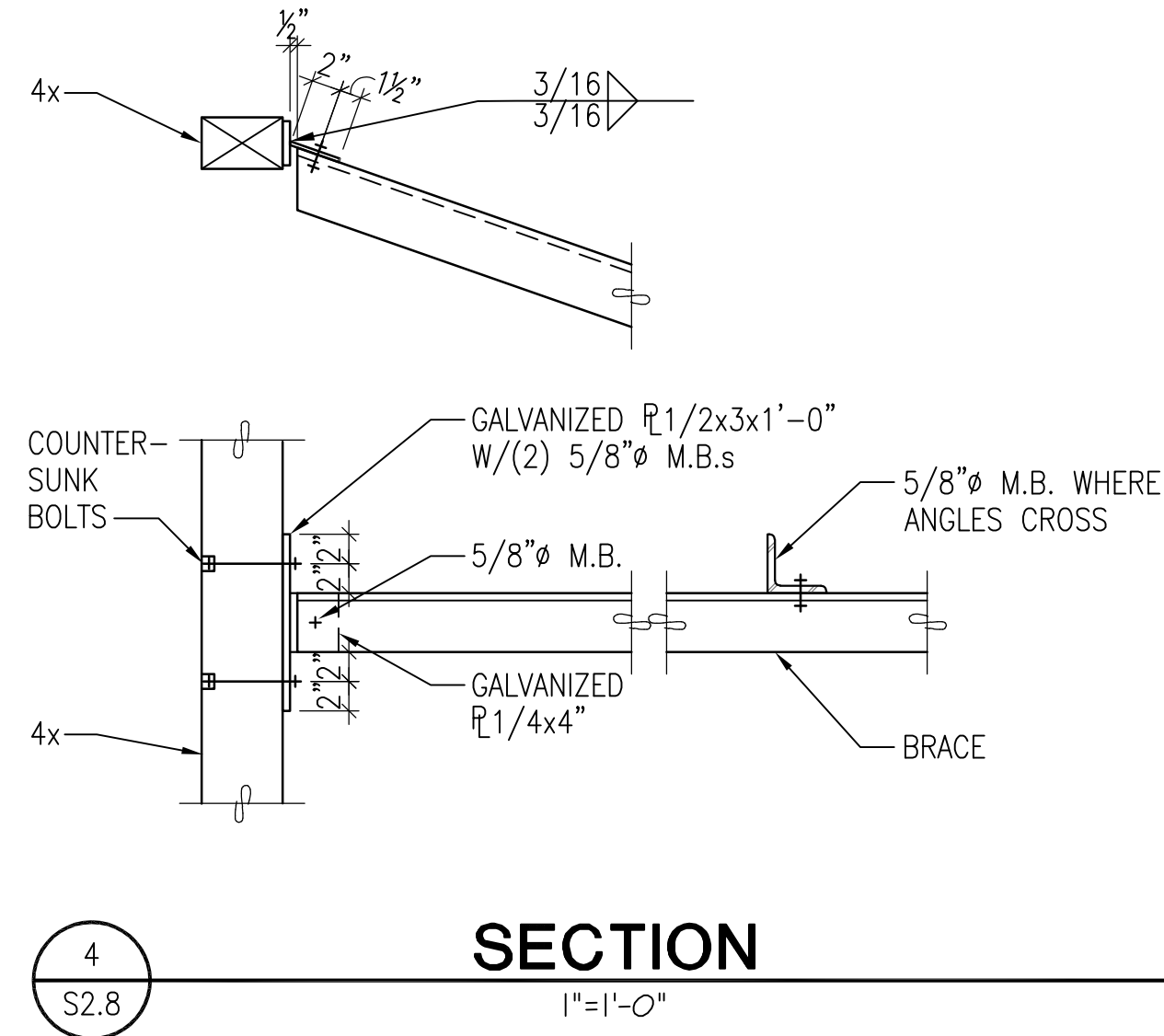
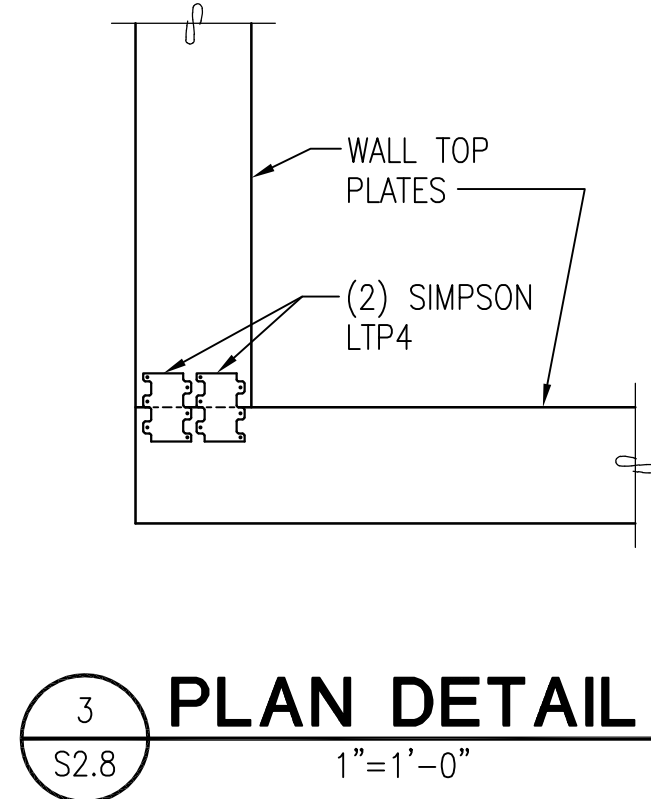
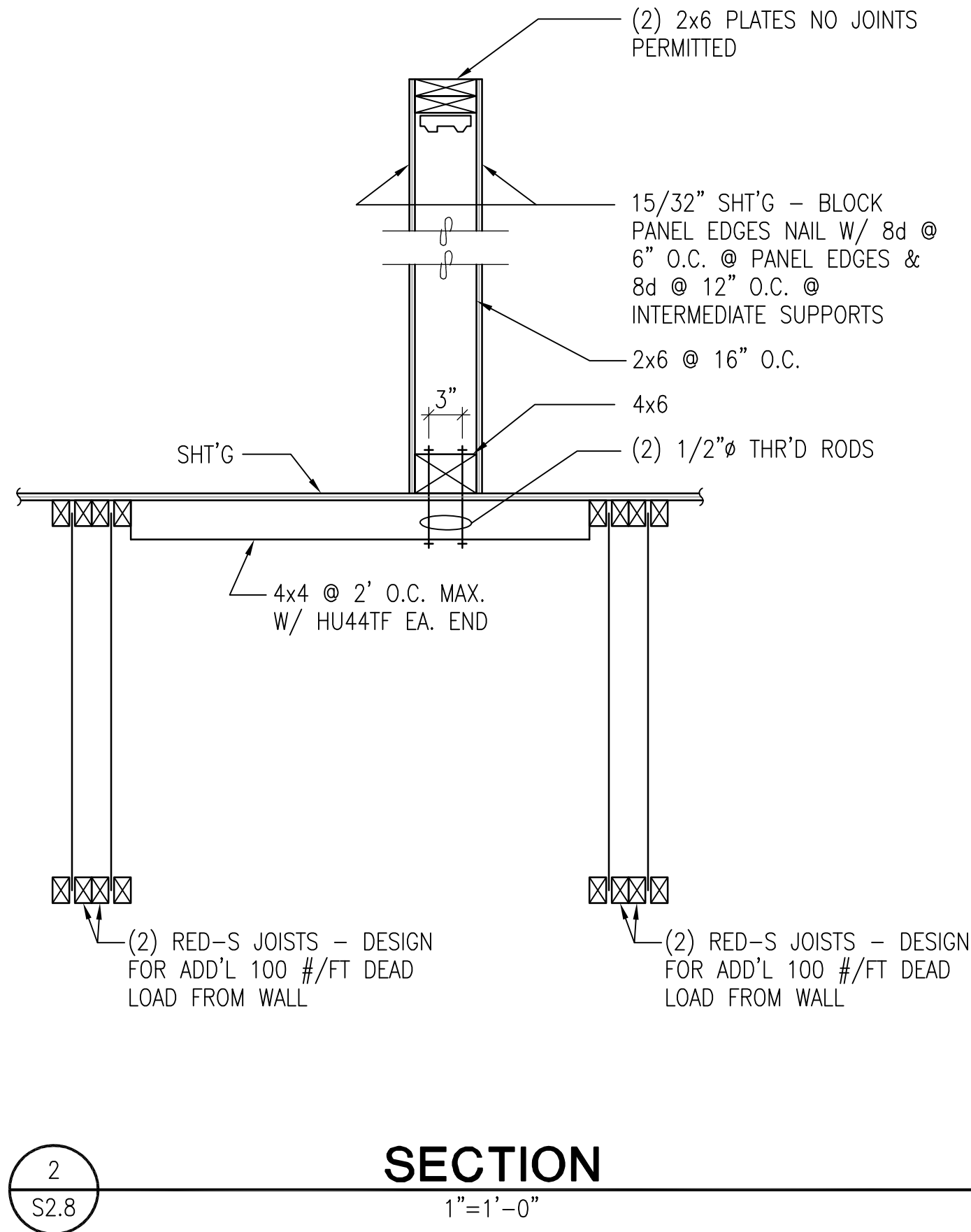
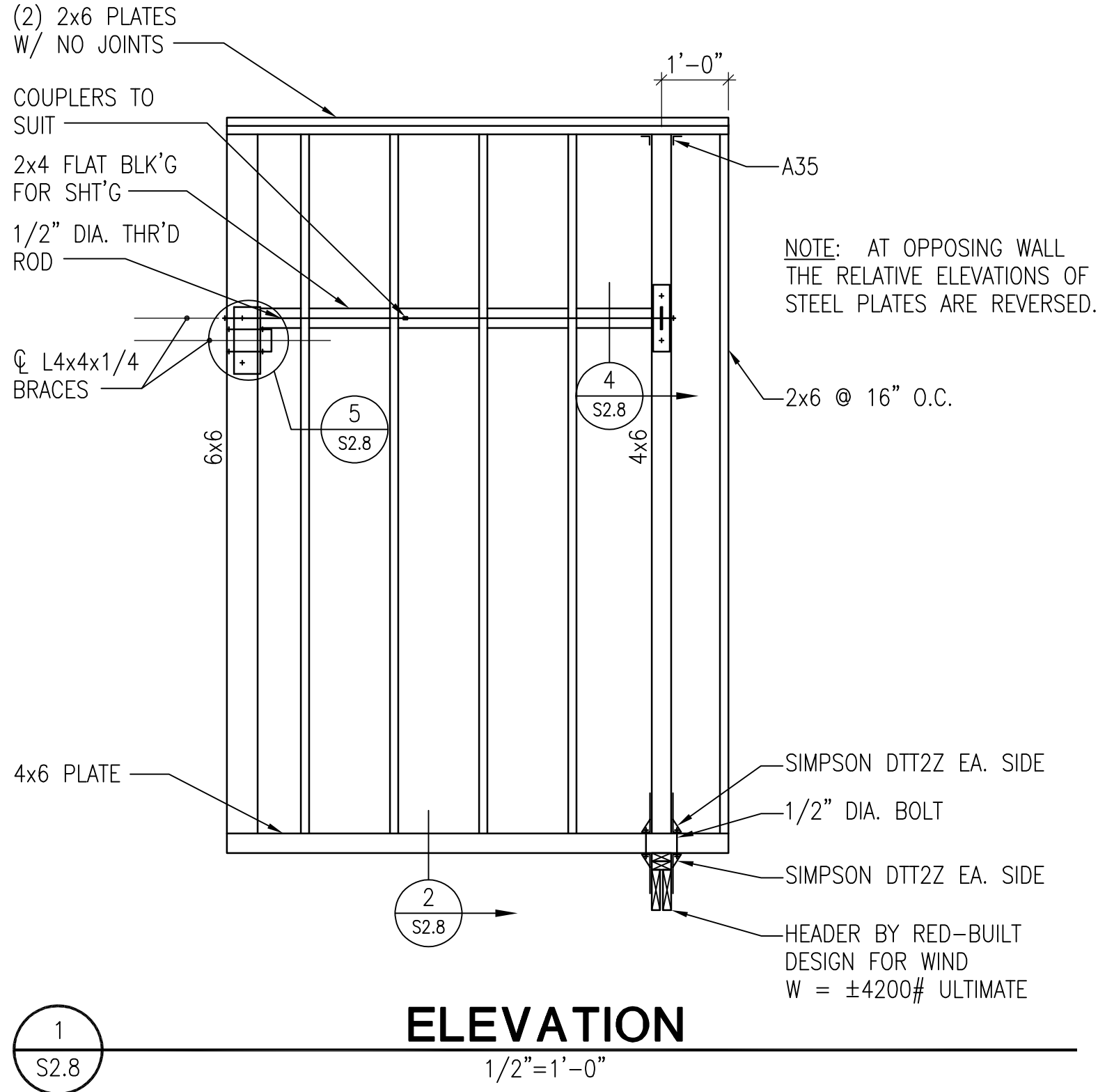
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CHECKED BY:	SJW	BP REPM:
DRAWN BY:	SAA	ALLIANCE PM:
VERSION:	-	PROJECT NO: 21730

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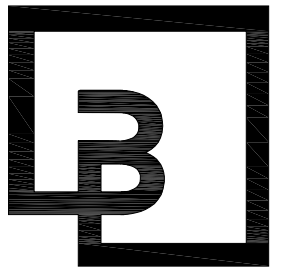
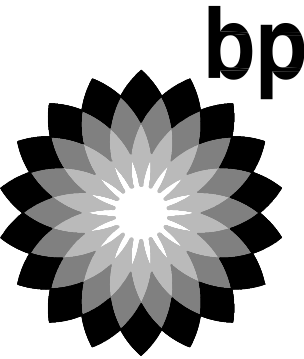
DETAILS

SHEET NO:

S2.7



CLIENT:

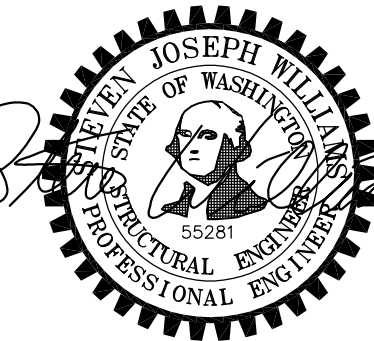


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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY:	SJW	ALLIANCE ZADON:
CHECKED BY:	SJW	BP REPM:
DRAWN BY:	SAA	ALLIANCE PM:
VERSION:	-	PROJECT NO:
		21730

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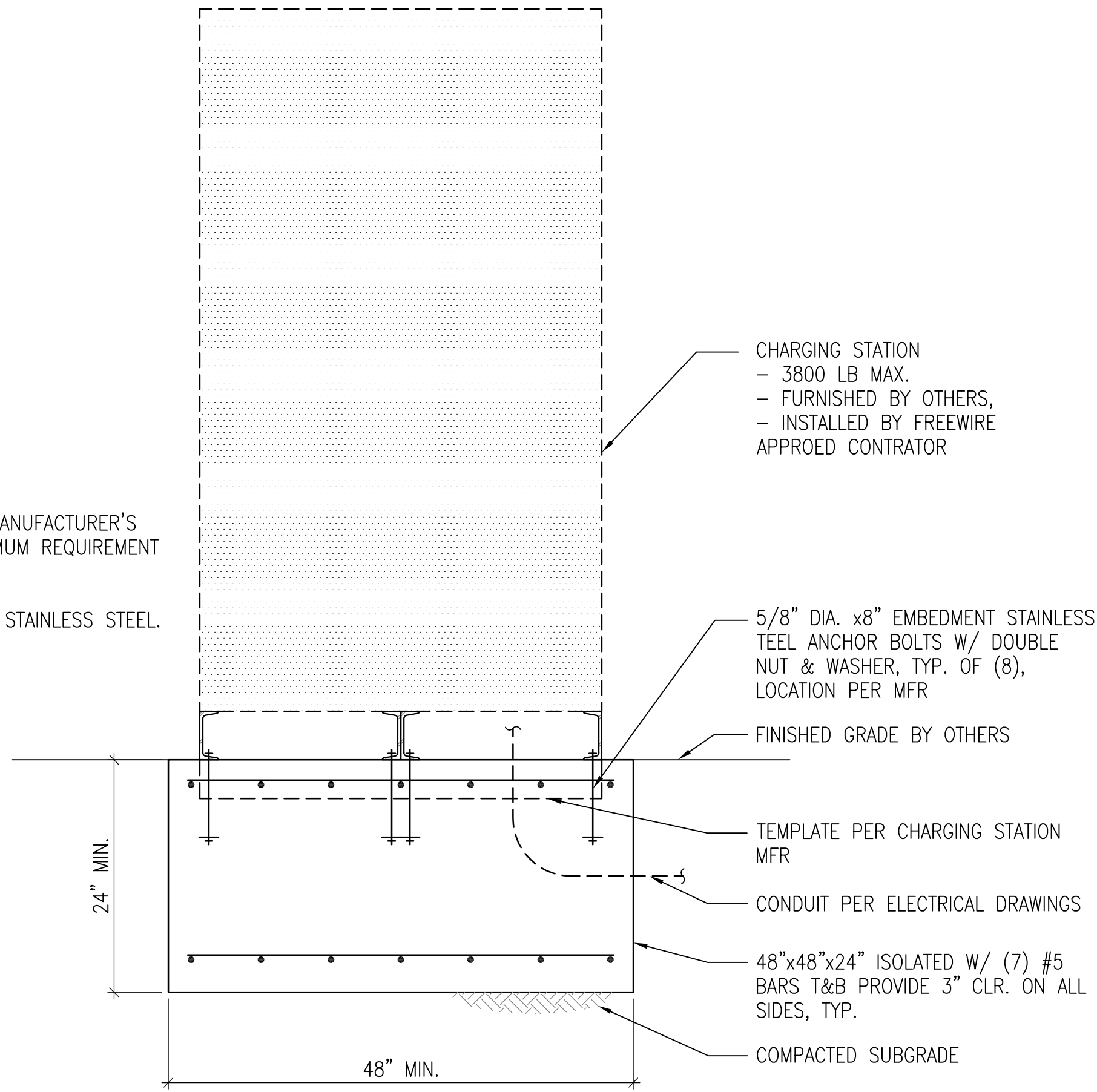
DETAILS

SHEET NO:

S2.8

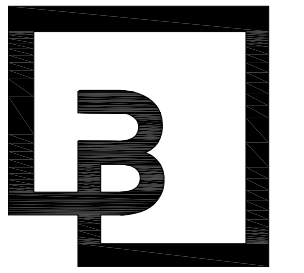
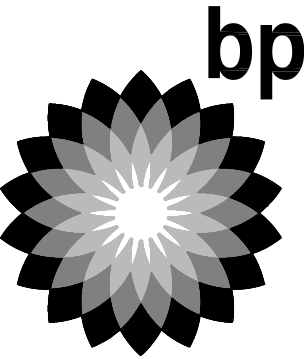
NOTES:

1. INSTALL ANCHOR BOLT PER MANUFACTURER'S RECOMMENDATIONS WITH MINIMUM REQUIREMENT LISTED.
2. BOLTS TO BE F593 304/316 STAINLESS STEEL.



1
S2.11

CLIENT:

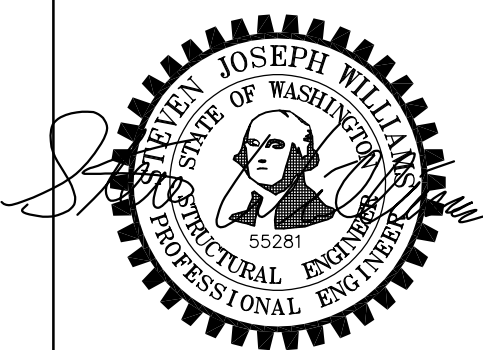


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NO.	DATE	REVISION	DESCRIPTION
-	10/17/23	BD	SET
1			
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY:	SJW	ALLIANCE ZADON:
CHECKED BY:	SJW	BP REPM:
DRAWN BY:	SAA	ALLIANCE PM:
VERSION:	-	PROJECT NO:
	-	21730

DRAWING TITLE:

**RETAINING WALL AND
EV CHARGING STATION DETAILS**

SHEET NO:

S2.11

GENERAL NOTES

THESE GENERAL NOTES ARE TO BE USED AS A SUPPLEMENT TO THE SPECIFICATIONS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATIONS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK. THE GENERAL CONTRACTOR SHALL VERIFY AND COORDINATE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. THE STRUCTURE HAS BEEN DESIGNED TO RESIST CODE SPECIFIED VERTICAL AND LATERAL FORCES AFTER THE CONSTRUCTION OF ALL STRUCTURAL ELEMENTS HAS BEEN COMPLETED. STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THIS RESPONSIBILITY INCLUDES BUT IS NOT LIMITED TO JOB SITE SAFETY; ERECTION MEANS, METHODS, AND SEQUENCES; TEMPORARY SHORING, FORMWORK, BRACING; USE OF EQUIPMENT AND CONSTRUCTION PROCEDURES. PROVIDE ADEQUATE RESISTANCE TO LOADS ON THE STRUCTURES DURING CONSTRUCTION PER SEI/ASCE STANDARD NO. 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION."

CONSTRUCTION OBSERVATION BY THE STRUCTURAL ENGINEER IS FOR GENERAL CONFORMANCE WITH DESIGN ASPECTS ONLY AND IS NOT INTENDED IN ANY WAY TO REVIEW THE CONTRACTOR'S CONSTRUCTION PROCEDURES.

STANDARDS

ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING OFFICIAL OR APPLICABLE JURISDICTION.

CONTRACT DRAWINGS/DIMENSIONS

ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. CONSULTANT DRAWINGS BY OTHER DISCIPLINES ARE SUPPLEMENTARY TO ARCHITECTURAL DRAWINGS. REPORT DIMENSIONAL OMISSIONS OR DISCREPANCIES BETWEEN ARCHITECTURAL DRAWINGS AND STRUCTURAL, MECHANICAL, ELECTRICAL OR CIVIL DRAWINGS TO ARCHITECT PRIOR TO PROCEEDING WITH WORK.

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS. PRIMARY STRUCTURAL ELEMENTS ARE DIMENSIONED ON STRUCTURAL PLANS AND DETAILS AND OVERALL LAYOUT OF STRUCTURAL PORTION OF WORK. SOME SECONDARY ELEMENTS ARE NOT DIMENSIONED, SUCH AS WALL CONFIGURATIONS, INCLUDING EXACT DOOR AND WINDOW LOCATIONS, ALCOVES, SLAB SLOPES AND DEPRESSIONS, CURBS, ETC. VERTICAL DIMENSIONAL CONTROL IS DEFINED BY ARCHITECTURAL WALL SECTIONS AND BUILDING SECTIONS. STRUCTURAL DETAILS SHOW DIMENSIONAL RELATIONSHIPS TO CONTROL DIMENSIONS DEFINED BY ARCHITECTURAL DRAWINGS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

DESIGN CRITERIA

VERTICAL LOADS

AREA	DESIGN DEAD LOAD (1)	LIVE LOAD	CONCENTRATED LOADS
ROOF	20 PSF	25 PSF	300#

1. INCLUDES UP TO 5 PSF OF ADDITIONAL DEAD LOAD FOR SOLAR READINESS

LATERAL FORCES

LATERAL FORCES ARE TRANSMITTED BY DIAPHRAGM ACTION OF ROOF TO SHEAR WALLS. LOADS ARE THEN TRANSFERRED TO FOUNDATION BY SHEAR WALL ACTION WHERE ULTIMATE DISPLACEMENT IS RESISTED BY PASSIVE PRESSURE OF EARTH AND/OR SLIDING FRICTION. OVERTURNING IS RESISTED BY DEAD LOAD OF THE STRUCTURE.

WIND:

THE BUILDING MEETS THE CRITERIA TO USE THE "ENCLOSED, PARTIALLY ENCLOSED, AND OPEN BUILDINGS OF ALL HEIGHTS PROCEDURE" PER ASCE 7-16.

- EXPOSURE CATEGORY = B
- BASIC WIND SPEED (3 SEC. GUST), $V_{ult} = 97$ MPH
- RISK CATAGORY PER TABLE 1.5-1 = II
- TOPOGRAPHIC FACTOR $K_{zt} = 1.0$
- INTERNAL PRESSURE COEFFICIENT (ENCLOSED) = ± 0.18
- COMPONENTS AND CLADDING LOADS, SEE THE FOLLOWING TABLES:

ROOF SURFACES ¹					
EFFECTIVE WIND AREA	POSITIVE PRESSURES (PSF)	NEGATIVE PRESSURES (PSF)			
		ZONE ³			
	ALL ZONES	1'	1	2	3
10 SF	16.0	−16.0	−21.9	−28.9	−39.4
20 SF	16.0	−16.0	−20.5	−27.0	−35.7
50 SF	16.0	−16.0	−18.5	−24.6	−30.7
100 SF	16.0	−16.0	−17.1	−22.7	−27.0
WALL SURFACES AND ROOF OVERHANGS ¹					
EFFECTIVE WIND AREA	POSITIVE PRESSURE (PSF)		NEGATIVE PRESSURE (PSF)		
	ZONE ²				
	4	5	4	5	
10 SF	16.0	16.0	−16.0	−18.4	
20 SF	16.0	16.0	−16.0	−17.2	
50 SF	16.0	16.0	−16.0	−16.0	
100 SF	16.0	16.0	−16.0	−16.0	
500 SF	16.0	16.0	−16.0	−16.0	

1. VALUES SHOWN IN TABLE ARE GROSS ULTIMATE WIND PRESSURES.
2. WALL ZONES ARE AS DEFINED BY FIGURE 30.3-1 FOR ASCE 7-16 IN LOW RISE BUILDINGS.
3. ROOF ZONES ARE AS DEFINED BY FIGURES 30.3-2 THROUGH 30.3-7 IN ASCE 7-16 FOR LOW RISE BUILDINGS.

SEISMIC: (ASCE 7-16) $V = C_s W$

WHERE $C_s = \frac{S_{ps}}{(\frac{R}{I_e})}$; WITH

C_s MINIMUM = 0.044 $S_{ps1} \geq 0.01$
OR
 C_s MINIMUM = $\frac{0.5S_1}{I_e}$ FOR $S_1 > 0.6g$

C_s MAXIMUM = $\frac{S_{p1}}{T(\frac{R}{I_e})}$ FOR $T \leq T_L$
OR
 C_s MAXIMUM = $\frac{S_{p1}T_L}{T^2(\frac{R}{I_e})}$ FOR $T > T_L$

SEISMIC IMPORTANCE FACTOR, $I_e = 1.0$
RISK CATEGORY OF BUILDING PER TABLE 1.5-1 = II
SPECTRAL RESPONSE ACCELERATIONS $S_s = 1.268$ $S_1 = 0.437$
SITE CLASS PER TABLE 20.3-1 = F
DESIGN SPECTRAL RESPONSE ACCELERATIONS $S_{ps} = 0.845$ & $S_{p1} = 0.543$
SEISMIC DESIGN CATEGORY = D
W = EFFECTIVE SEISMIC WEIGHT OF BUILDING = 109.2 KIPS
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE
RESPONSE MODIFICATION FACTOR PER TABLE 12.2-1, $R = 6.5$
 $C_s = 0.130$
DESIGN BASE SHEAR $V = 12.6$ KIPS

PIPES, DUCTS AND MECHANICAL EQUIPMENT SUPPORTED OR BRACED FROM STRUCTURE. CONFORM TO SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. PUBLICATION "SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS". SPRINKLER LINE ATTACHMENTS SHALL CONFORM TO NFPA PAMPHLET 13.

FOUNDATION DESIGN CRITERIA (REFER TO GEOTECHNICAL ENGINEERING REPORT BY KRAZAN AND ASSOCIATES, INC. DATED MAY 6, 2023).

SOIL BEARING PRESSURE: 1500 PSF

PASSIVE RESISTANCE: 300 PCF (INCLUDES F.O.S. ≥ 1.5)
COEFFICIENT OF FRICTION: 0.35 (INCLUDES F.O.S. ≥ 1.5)
*1/3 INCREASE ALLOWED FOR SEISMIC OR WIND LOADING

ALL FOOTINGS SHALL BEAR ON DEEP FOUNDATIONS EXTENDING BELOW THE DEEPER LIQUEFIABLE SOILS. CONTRACTOR SHALL EXERCISE EXTREME CARE DURING EXCAVATION TO AVOID DAMAGE TO BURIED LINES, TANKS, AND OTHER CONCEALED ITEMS. UPON DISCOVERY, DO NOT PROCEED WITH WORK UNTIL RECEIVING WRITTEN INSTRUCTIONS FROM ARCHITECT. A COMPETENT REPRESENTATIVE OF THE OWNER SHALL INSPECT ALL FOOTING EXCAVATIONS FOR SUITABILITY OF BEARING SURFACES PRIOR TO PLACEMENT OF REINFORCING STEEL. PROVIDE DRAINAGE AND DEWATERING AROUND ALL WORK TO AVOID WATER-SOFTENED FOOTINGS.

SITE STRUCTURES BEARING ON SHALLOW FOUNDATIONS SHALL HAVE BEARING SOILS PREPARED PER THE GEOTECHNICAL REPORT. UNDOCUMENTED FILL AND SOFT NATIVE SOILS SHALL BE REMOVED TO A MINIMUM DEPTH OF TWO BELOW SPREAD FOOTINGS AND BACKFILLED WITH PROPERLY COMPACTED STRUCTURAL FILL.

STEEL PIPE PILES

PIPE PILES: 8" NOMINAL DIAMETER GALVANIZED SCHEDULE 40 = 25K ALLOWABLE AXIAL COMPRESSION.

4' MINIMUM EMBED INTO UNDERLYING DENSE TO VERY DENSE SAND AND GRAVEL OR AS OTHERWISE APPROVED BY GEOTECHNICAL ENGINEER BASED ON OBSERVATIONS DURING PILE DRIVING, WHICHEVER IS DEEPER.

TESTING: ALLOWABLE LOADS TO BE VERIFIED BY LOAD TESTS IN ACCORDANCE WITH ASTM D-1143 "QUICK LOAD TEST". A MINIMUM OF 3% OF THE TOTAL PILES SHALL BE TESTED A MINIMUM OF ONE TIME AND MAXIMUM OF 5 TIMES PER PILE.

MATERIAL: PIPE PILES - ASTM A252 GR3 ($F_y = 45$ KSI).

TIP DESIGN: TIP DESIGN SHALL BE PER CONTRACTOR AND TAKE INTO CONSIDERATION INSTALLATION REQUIREMENTS.

INSTALLATION: INSTALL IN A TRUE VERTICAL POSITION. REFER TO THE GEOTECHNICAL REPORT TO DETERMINE THE GENERALIZED SUBSURFACE PROFILES, DRIVEABILITY, SOIL PROPERTIES, CONSTITUENTS, EXISTING SITE FEATURES AND CONDITIONS, AND LOAD TESTING PROTOCOLS.

INDICATOR PILES: THE LENGTH OF THE PILE REQUIRED AND THE PILE INSTALLATION SHALL BE VERIFIED IN THE FIELD BY A QUALIFIED INSPECTOR WHO WILL EVALUATE THE CONTRACTOR'S OPERATION AND COLLECT, INTERPRET AND RECORD DATA. A MINIMUM OF TWO INDICATOR PILES SHALL BE DRIVEN BEFORE ORDERING PRODUCTION PILES TO ESTIMATE THE TRUE PILE LENGTHS AND DETERMINE DRIVING CHARACTERISTICS AND PROBLEMS. A QUALIFIED INSPECTOR SHALL EVALUATE INSTALLATION OF INDICATOR PILES.

CONCRETE

CAST-IN-PLACE CONCRETE

MIX DESIGNS: THE CONTRACTOR SHALL DESIGN CONCRETE MIXES THAT MEET OR EXCEED THE REQUIREMENTS OF THE CONCRETE MIX TABLE. THE MIX DESIGNS SHALL FACILITATE ANTICIPATED PLACEMENT METHODS, WEATHER, REBAR CONGESTION, ARCHITECTURAL FINISHES, CONSTRUCTION SEQUENCING, STRUCTURAL DETAILS, AND ALL OTHER FACTORS REQUIRED TO PROVIDE A STRUCTURALLY SOUND, AESTHETICALLY ACCEPTABLE FINISHED PRODUCT. WATER REDUCING ADMIXTURES WILL LIKELY BE REQUIRED TO MEET THESE REQUIREMENTS. CONCRETE MIX DESIGNS SHALL CLEARLY INDICATE THE TARGET SLUMP. SLUMP TOLERANCE SHALL BE $\pm 1-1/2$ INCHES.

AGGREGATE: COARSE AND FINE AGGREGATE SHALL CONFORM TO ASTM C33

CEMENT: CEMENT SHALL CONFORM TO ASTM C150, TYPE II PORTLAND CEMENT, UNLESS NOTED OTHERWISE.

FLYASH: SHALL CONFORM TO ASTM C618 CLASS C OR F, MAXIMUM LOSS OF IGNITION SHALL BE 1.0%.

SLAG: GROUND GRANULATED BLAST-FURNACE (GGBF) SLAG SHALL CONFORM TO ASTM C989 GRADE 100 OR 120.

ALTERNATE MIX DESIGNS: VARIATIONS TO THE MIX DESIGN PROPORTIONS MAY BE ACCEPTED IF SUBSTANTIATED IN ACCORDANCE WITH ACI 318, CHAPTER 19. PROVIDE SUBMITTALS A MINIMUM OF TWO WEEKS PRIOR TO BID FOR DETERMINATION OF ACCEPTABILITY.

ADMIXTURES: ADMIXTURES SHALL BE BY MASTER BUILDERS, W.R. GRACE, OR PRE-APPROVED EQUAL. ALL MANUFACTURERS RECOMMENDATIONS SHALL BE FOLLOWED.

WATER: SHALL BE CLEAN AND POTABLE.

MAXIMUM CHLORIDE CONTENT: THE MAXIMUM WATER SOLUBLE CHLORIDE CONTENT SHALL NOT EXCEED 0.15% BY WEIGHT OF CEMENTITIOUS MATERIAL UNLESS NOTED OTHERWISE.

CONCRETE EXPOSED TO WEATHER: PROVIDE 5.0% TOTAL AIR CONTENT FOR ALL CONCRETE EXPOSED TO WEATHER. TOTAL AIR CONTENT IS THE SUM OF ENTRAINED AIR PROVIDED BY ADMIXTURES AND NATURALLY OCCURRING ENTRAPPED AIR. AIR CONTENT SHALL BE TESTED PRIOR TO BEING PLACED IN THE PUMP HOPPER OR BUCKET; IT IS NOT REQUIRED TO BE TESTED AT THE DISCHARGE END OF THE PUMP HOSE. THE TOLERANCE ON ENTRAPPED AIR SHALL BE +2.0% AND -1.5% WITH THE AVERAGE OF ALL TESTS NOT LESS THAN THE SPECIFIED AMOUNT.

TOTAL CEMENTITIOUS MATERIAL: THE SUM OF ALL CEMENT PLUS FLYASH AND SLAG. AT THE CONTRACTORS OPTION FLYASH OR SLAG MAY BE SUBSTITUTED FOR CEMENT BUT SHALL NOT EXCEED 25% BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL. IN NO CASE SHALL THE AMOUNT OF FLYASH OR SLAG BE LESS THAN REQUIRED BY THE CONCRETE MIX DESIGN TABLE. FOOTING MIXES SHALL CONTAIN NOT LESS THAN 5 SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD, ALL OTHER MIXES SHALL CONTAIN NOT LESS THAN 5-1/2 SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD, UNLESS NOTED OTHERWISE.

ITEM	DESIGN f'c (PSI) (AT 28 DAYS U.N.O.)	MAX. W/C RATIO	MIN. FLYASH OR SLAG (PCY)	AGGREGATE GRADING ASTM AASHTO	NOTES
SLABS ON GRADE - UNO	4000	0.45	100	57 OR 67	1
ARCHITECTURALLY EXPOSED SLABS ON GRADE	4000	0.45	100	57 OR 67	1, 2
FOUNDATIONS - UNO	3000	0.50	--	57 OR 67	
STEM WALLS AND OTHER WALLS EXPOSED TO EARTH OR WEATHER	4500	0.45	100	57 OR 67	
ALL OTHER CONCRETE	4000	0.50	--	57 OR 67	

CONCRETE MIX NOTES:

1. MAXIMUM WATER CONTENT 240 PCY.
2. THIS MIX SHALL CONTAIN 1 GALLON PER CY OF 'ECLIPSE' SHRINKAGE REDUCING ADD MIXTURE BY W.R. GRACE OR APPROVED ALTERNATE. FOR CONCRETE REQUIRING AN AIR ENTRAINMENT ADMIXTURE, "ECLIPSE PLUS" SHALL BE USED.

CONCRETE PLACEMENT

PLACE CONCRETE FOLLOWING ALL APPLICABLE ACI RECOMMENDATIONS. CONCRETE SHALL BE PROPERLY CONSOLIDATED PER ACI 309 USING INTERIOR MECHANICAL VIBRATORS, DO NOT OVER-VIBRATE. CONCRETE SHALL BE POURED MONOLITHICALLY BETWEEN CONSTRUCTION OR EXPANSION JOINTS. IF CONCRETE IS PLACED BY THE PUMP METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE, THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE REINFORCING. WEATHER FORECASTS SHALL BE MONITORED AND ACI RECOMMENDATIONS FOR HOT AND COLD WEATHER CONCRETING SHALL BE FOLLOWED AS REQUIRED. CONCRETE SHALL NOT FREE FALL MORE THAN 5 FEET DURING PLACEMENT WITHOUT WRITTEN APPROVAL OF STRUCTURAL ENGINEER.

FLOATING & FINISHING OPERATIONS:

WATER SHALL NOT BE ADDED TO THE CONCRETE SURFACE DURING FLOATING & FINISHING OPERATIONS. PRE-APPROVED EVAPORATION RETARDER SPECIFICALLY DESIGNED FOR FLOATING & FINISHING OPERATIONS ARE ACCEPTABLE.

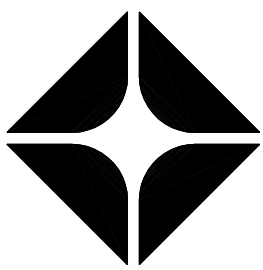
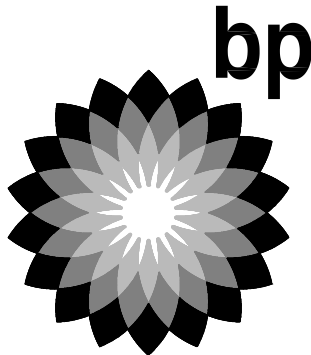
FORMED SURFACES:

FORMWORK CLASS OF SURFACE PER ACI TABLE 347 TABLE 3.1	
ITEM	CLASS OF FINISH
ALL SURFACES EXPOSED TO PUBLIC VIEW, UNLESS NOTED OTHERWISE	A
ALL SURFACES RECEIVING A COURSE TEXTURED COATING SUCH AS PLASTER OR STUCCO, UNLESS NOTED OTHERWISE	B
ALL OTHER SURFACES, UNLESS NOTED OTHERWISE	C

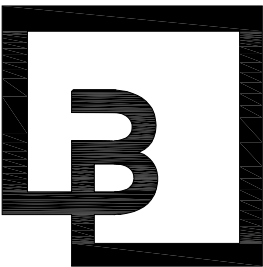
COLD WEATHER PLACEMENT

1. COLD WEATHER IS DEFINED BY ACI 306 AS "A PERIOD WHEN FOR MORE THAN 3 SUCCESSIVE DAYS THE MEAN DAILY TEMPERATURE DROPS BELOW 40° F."
2. NO CONCRETE SHALL BE PLACED ON FROZEN OR PARTIALLY FROZEN GROUND. THAWING THE GROUND WITH HEATERS IS PERMISSIBLE.
3. CONCRETE MIX TEMPERATURES SHALL BE AS SHOWN BELOW. HEATING OF WATER AND/OR AGGREGATES MAY BE REQUIRED TO ATTAIN THESE TEMPERATURES.
4. THE CONCRETE MAY REQUIRE PROTECTION FOR 4-7 DAYS AFTER POURING. IF TEMPERATURES REMAIN BELOW FREEZING, INSULATING BLANKET COVERAGE IS REQUIRED. IF TEMPERATURES ARE SLIGHTLY BELOW FREEZING (30° F MIN.) AT NIGHT AND ABOVE FREEZING DURING THE DAY, KRAFT PAPER WITH COMPLETE COVERAGE MAY BE USED IN LIEU OF INSULATED BLANKETS.
5. NO ADDITIVES CONTAINING CHLORIDES SHALL BE USED. USE "POZZUTEC 20+" BY MASTER BUILDERS OR "POLARSET" BY W.R. GRACE OR PRE-APPROVED EQUAL.

CLIENT:



BP WEST COAST PRODUCTS, LLC



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NO.	DATE	REVISION DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY: SJW ALLIANCE ZADM:

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VERSION: PROJECT NO:
- 21730

DRAWING TITLE:

GENERAL NOTES

SHEET NO:

S3.1

CONDITION OF PLACEMENT AND CURING		WALLS & SLABS	FOOTINGS
MIN. TEMP. FRESH CONCRETE AS MIXED FOR WEATHER INDICATED. DEGREES F.	ABOVE 30° F. 0 TO 30° F. BELOW 0° F.	60' 65' 70'	55' 60' 65'
MIN. TEMP. FRESH CONCRETE AS PLACED AND MAINTAINED, DEGREES F.		55'	50'
MAX. ALLOWABLE GRADUAL DROP IN TEMP. THROUGHOUT FIRST 24 HOURS AFTER END OF PROTECTION, DEGREES F.		50'	40'

HOT OR WINDY WEATHER PLACEMENT

HOT WEATHER IS DEFINED BY ACI 305 AS "ANY COMBINATION OF HIGH AIR TEMPERATURE, LOW RELATIVE HUMIDITY, AND WIND VELOCITY, TENDING TO IMPAIR THE QUALITY OF FRESH HARDENED CONCRETE.. ACI 305 FIGURE 2.1.5 SHALL BE USED BY THE CONTRACTOR TO ESTIMATE THE RATE OF EVAPORATION. WHEN THE ESTIMATED RATE OF EVAPORATION IS GREATER THAN 0.2 PSF/HOUR THE PLACEMENT SHALL BE CONSIDERED A HOT WEATHER PLACEMENT. PRECAUTIONS AGAINST PLASTIC SHRINKAGE CRACKING ARE NECESSARY. PRECAUTIONS TAKEN BY THE CONTRACTOR VARY DEPENDING UPON THE FACTORS ASSOCIATED WITH WATER EVAPORATION AND INCLUDE BUT ARE NOT LIMITED TO:

1. LIMITING CONCRETE TEMPERATURE TO 100°F AT TIME OF PLACEMENT.
2. APPLICATION OF AN EVAPORATION RETARDER.
3. USE OF FOG SPRAY.
4. REDUCTION OF POUR SIZE.
5. PLACING CONCRETE AT NIGHT.

CONTROL AND CONSTRUCTION JOINTS

CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF ACI 301 SECTIONS 2.2.2.5 AND 5.3.2.6. SPECIAL BONDING METHODS PER SECTION 5.3.2.6 SHALL BE SATISFIED BY ITEM 4 BELOW UNLESS OTHERWISE DETAILED ON THE STRUCTURAL DRAWINGS. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN ON PLAN OR ADDITIONAL CONSTRUCTION JOINTS ARE REQUIRED SUBMIT PROPOSED JOINTING FOR STRUCTURAL ENGINEERS APPROVAL. PROVIDE CONSTRUCTION JOINTS AS INDICATED BELOW UNLESS NOTED OTHERWISE ON THE PLANS:

1. SLABS ON GRADE. PROVIDE CONSTRUCTION AND/OR CONTROL JOINTS AT 16 FEET O.C. MAXIMUM FOR UNEXPOSED SLABS ON GRADE AND 12 FEET O.C. FOR EXPOSED SLABS ON GRADE. COORDINATE JOINTS WITH ARCHITECTURAL DRAWINGS.
2. BONDING AGENT. WHERE BONDING AGENT IS SPECIFICALLY CALLED OUT ON THE STRUCTURAL DRAWINGS USE "WELD CRETE" BY LARSON PRODUCTS CORPORATION OR PRE-APPROVED EQUAL. FOLLOW ALL MANUFACTURERS RECOMMENDATIONS.
3. ATTACHMENT OF NEW CONCRETE TO EXISTING: WHERE SHOWN, ROUGHEN CONCRETE TO A MINIMUM AMPLITUDE OF 1/4" USING IMPACT HAMMER. REMOVE ALL LOOSE OR DAMAGED CONCRETE, THOROUGHLY FLUSH ALL SURFACES WITH POTABLE WATER, AIR BLAST WITH OIL FREE COMPRESSED AIR TO REMOVE ALL WATER.

EMBEDDED ITEMS

1. NO ALUMINUM ITEMS SHALL BE EMBEDDED IN ANY CONCRETE.
2. ALL EMBED PLATES SHALL BE SECURELY FASTENED IN PLACE.
3. ALL EMBEDDED STEEL ITEMS EXPOSED TO EARTH SHALL BE GALVANIZED.
4. ALL EMBEDDED STEEL ITEMS EXPOSED TO WEATHER SHALL BE PAINTED UNLESS NOTED AS GALVANIZED. SEE DRAWINGS AND SPECIFICATIONS FOR PAINT, PRIMER, AND GALVANIZING REQUIREMENTS.

CONCRETE CURING AND SEALING

CURING PROCEDURES SHALL COMMENCE IMMEDIATELY AFTER FINISHING CONCRETE TO MAINTAIN CONCRETE IN A MOIST CONDITION. VERIFY CURING AND/OR SEALING PRODUCTS ARE COMPATIBLE WITH FLOOR COVERINGS SHOWN ON THE ARCHITECTURAL DRAWINGS. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS. SLABS ARE DEFINED AS SLABS ON GRADE, CONCRETE ON METAL DECK, ELEVATED POST-TENSIONED OR MILD REINFORCED DECKS, AND TOPPING SLABS

ITEM	CONCRETE CURING NOTES
SLABS EXPOSED TO EARTH OR WEATHER OR VEHICLE OR FORKLIFT TRAFFIC INCLUDING LOADING DOCKS	1, (3 OR 4 OR 5), 6
ALL OTHER SLABS	1, (3 OR 4 OR 5)
FORMED SURFACES EXCLUDING FOUNDATIONS	2
ALL OTHER CONCRETE	NONE

CONCRETE CURING NOTES:

1. WHEN THE ESTIMATED EVAPORATION RATE IS GREATER THAN 0.2 PSF/HOUR, PROVIDE A SPRAY APPLIED EVAPORATION RETARDER IMMEDIATELY AFTER CONCRETE PLACEMENT. THE EVAPORATION RATE MAY BE CALCULATED PER ACI 305 FIGURE 2.1.5.
2. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND, CONFORMING TO ASTM C309 TYPE 1 CLASS B SPECIFICATIONS, PER MANUFACTURERS RECOMMENDATIONS TO ALL FORMED SURFACES IMMEDIATELY AFTER FORM REMOVAL. NOT REQUIRED IF FORMWORK REMAINS IN PLACE FOR MORE THAN 7 DAYS.
3. PROVIDE PRE-APPROVED CONTINUOUS WET CURE METHOD FOR A MINIMUM OF 14 DAYS.
4. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND, CONFORMING TO ASTM C309 TYPE 1 CLASS B SPECIFICATIONS OR ASTM C1315 TYPE 1 CLASS A SPECIFICATIONS, PER MANUFACTURERS RECOMMENDATIONS IMMEDIATELY AFTER FINAL FINISHING. CURING COMPOUND SHALL BE COMPATIBLE WITH ARCHITECTURAL FLOOR COVERINGS AND SEALERS.
5. PROVIDE 'ULTRACURE MAX' MOISTURE RETAINING COVER BY MCTECH GROUP, OR APPROVED EQUAL, FOR A MINIMUM OF 14 DAYS.
6. APPLY A SILANE SEALER WITH MINIMUM SOLIDS CONTENT OF 40% PER MANUFACTURERS RECOMMENDATIONS.

GROUT

NON-SHRINK GROUT: MASTER BUILDERS "MASTERFLOW 928" OR PRE-APPROVED EQUAL. GROUT SHALL CONFORM TO CRD-C621 AND ASTM C1107 WHEN TESTED AT A FLUID CONSISTENCY PER CRD- C611-85 FOR 30 MINUTES. GROUT MAY BE PLACED FROM A 25 SECOND FLOW TO A STIFF PACKING CONSISTENCY. FILL OR PACK ENTIRE SPACE UNDER PLATES OR SHAPES. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PREPARATION, INSTALLATION, AND CURING.

REINFORCING STEEL

REINFORCING STEEL SHALL CONFORM TO:

ASTM A615, GRADE 60 TYPICAL UNLESS NOTED OTHERWISE.

DETAIL FABRICATE AND PLACE PER ACI 315 AND ACI 318.

WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A185. LAP ONE FULL MESH ON SIDES AND ENDS, BUT NOT LESS THAN 8 INCHES. WELDED WIRE REINFORCING SHALL BE SUPPORTED TO WITHSTAND CONCRETE PLACEMENT. PULLING OF MESH INTO PLACE AFTER PLACEMENT IS NOT ALLOWED.

REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE, Fy=60 KSI (UNLESS NOTED OTHERWISE)					
BAR SIZE	MINIMUM LAP SPLICE LENGTHS ("Ls")		MINIMUM DEVELOPMENT LENGTHS ("Ld")		MINIMUM EMBEDMENT LENGTH FOR STANDARD END HOOKS ("Ldh")
	TOP BARS (1)	OTHER BARS	TOP BARS (1)	OTHER BARS	
#3	2'-0"	1'-6"	1'-6"	1'-3"	0'-7"
#4	2'-8"	2'-0"	2'-0"	1'-7"	0'-9"
#5	3'-4"	2'-7"	2'-7"	2'-0"	1'-0"
#6	4'-0"	3'-1"	3'-1"	2'-4"	1'-2"
#7	5'-10"	4'-6"	4'-6"	3'-6"	1'-5"
#8	6'-8"	5'-2"	5'-2"	3'-11"	1'-7"

SPLICE TABLE NOTE:

1. "TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

REINFORCING STEEL COVER

PROVIDE CONCRETE COVER OVER REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE.

CONCRETE CAST AGAINST EARTH ----- 3"
EXPOSED TO WEATHER OR EARTH ----- 2"
WALLS AND SLABS NOT EXPOSED TO WEATHER----- 3/4"

POST-INSTALLED ANCHORS

POST-INSTALLED ANCHORS: SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE STRUCTURAL ENGINEER PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH REBAR. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. INSTALLER SHALL BE QUALIFIED AND TRAINED BY THE MANUFACTURER. HOLES SHALL BE HAMMER DRILLED ONLY (ROTARY DRILLED ONLY AT UNREINFORCED MASONRY – NO HAMMER TOOLS).

SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED FOR APPROVAL A MINIMUM OF 2 WEEKS PRIOR TO BID, ALONG WITH CALCULATIONS THAT ARE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER (LICENSED IN THE STATE IN WHICH THE PROJECT OCCURS) DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE.

CONCRETE ANCHORS:

- ADHESIVE ANCHORS: HILTI HIT-HY 200 (ICC-ESR-3187), HILTI HIT-RE 500 V3 (ICC-ESR-3814), DEWALT PURE 110+ (ICC-ESR-3298) OR SIMPSON SET-3G (ICC-ESR-4057) OR PRE-APPROVED EQUAL.
- *CONCRETE SHALL BE A MINIMUM OF 21 DAYS OLD AT TIME OF INSTALLATION.
- *CONCRETE SHALL BE IN THE TEMPERATURE RANGE AS REQUIRED BY THE CONCRETE MANUFACTURER.
- *HOLE SHALL BY HAMMER-DRILLED ONLY. *DO NOT INSTALL IN WATER-FILLED HOLES.
- *INSTALLER OF HORIZONTAL OR UPWARDLY INCLINED (ANY POSITION EXCEPT DIRECTLY DOWNWARD) ANCHORS SHALL ALSO BE CERTIFIED BY THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.
- EXPANSION ANCHORS: KWIKBOLT TZ (ICC ESR-1917) BY HILTI, INC., OR PRE-APPROVED EQUAL.
- SCREW ANCHORS: KWIK HUS-EZ (ICC ESR-3027) BY HILTI, INC., OR PRE-APPROVED EQUAL.

STRUCTURAL STEEL

DETAILING, FABRICATION AND ERECTION

ALL WORKMANSHIP SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION, 15TH EDITION, THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS JULY 7, 2016, THE AISC CODE OF STANDARD PRACTICE, JUNE 15, 2016 AND THE AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, JULY 12, 2016.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDES AND JOINT PREPARATIONS THAT INCLUDE BUT ARE NOT LIMITED TO, ERECTION ANGLES, LIFT HOLES, AND OTHER AIDES, WELDING PROCEDURES, REQUIRED ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, WELD EXTENSION TABS, COPES, SURFACE ROUGHNESS VALUES AND TAPERS OF UNEQUAL PARTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLIANCE WITH ALL CURRENT OSHA REQUIREMENTS.

HOLES, COPES OR OTHER CUTS OR MODIFICATIONS OF THE STRUCTURAL STEEL MEMBERS SHALL NOT BE MADE IN THE FIELD WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

MATERIAL PROPERTIES

SHAPES AND PLATES: ASTM A36 (Fy = 36 KSI) TYP. U.N.O.; ASTM A572 (Fy = 50 KSI) WHERE INDICATED

HOLLOW STRUCTURAL SECTIONS: RECTANGULAR & SQUARE – ASTM A500 GRADE C (Fy = 50 KSI) ROUND – ASTM A500 GRADE C (Fy = 46 KSI)

STRUCTURAL STEEL PIPES : ASTM A53, GRADE B, TYPE E OR S (Fy = 35 KSI)

MACHINE BOLTS (M.B.): ASTM A307, GRADE A

ANCHOR BOLTS (A.B.): ASTM F1554, GRADE 55, UNLESS NOTED OTHERWISE, ASTM F1554, GRADE 105 WHERE INDICATED.

WELDING

STRUCTURAL STEEL: WELD IN ACCORDANCE WITH "STRUCTURAL WELDING CODE" AWS D1.1.

CERTIFICATION: ALL WELDING SHALL BE PERFORMED BY WABO/AWS CERTIFIED WELDERS. WELDERS SHALL BE PREQUALIFIED FOR EACH POSITION AND WELD TYPE WHICH THE WELDER WILL BE PERFORMING.

WELD TABS (ALSO KNOWN AS WELD "EXTENSION" TABS OR "RUN OFF" TABS) SHALL BE USED. AFTER THE WELD HAS BEEN COMPLETED THE WELD TABS SHALL BE REMOVED AND THE WELD END GROUND TO A SMOOTH CONTOUR. WELD "DAMS" OR "END DAMS" SHALL NOT BE USED.

THE PROCESS CONSUMABLES FOR ALL WELD FILLER METAL INCLUDING TACK WELDS, ROOT PASS AND SUBSEQUENT PASSES DEPOSITED IN A JOINT SHALL BE COMPATIBLE.

ALL WELD FILLER METAL AND WELD PROCESS SHALL PROVIDE THE TENSILE STRENGTH AND CHARPY V-NOTCH RATINGS AS FOLLOWS:

GRAVITY FRAME

WELD TYPE	FILLER METAL TENSILE STRENGTH	CHARPY V-NOTCH (CVN) RATING
FILLET	70 KSI	-----
PARTIAL PENETRATION	70 KSI	-----
COMPLETE PENETRATION	70 KSI	20 FT-LBS @ 40 DEG F

WELDED CONNECTIONS INSPECTION:

1. ALL WELDING SHALL BE CHECKED BY VISUAL MEANS AND BY OTHER METHODS DEEMED NECESSARY BY THE WELDING INSPECTOR.

THE STANDARDS OF ACCEPTANCE FOR WELDS TESTED BY ULTRASONIC METHODS SHALL CONFORM TO AWS D1.1.

ALL WELDS FOUND TO BE DEFECTIVE SHALL BE REPAIRED AND REINSPECTED BY THE SAME METHODS ORIGINALLY USED, AND THIS REPAIR AND REINSPECTION SHALL BE PAID FOR BY THE CONTRACTOR.

GENERAL REQUIREMENTS

BOLTED CONNECTIONS INSPECTION: CONNECTIONS MADE WITH BEARING TYPE BOLTS SHALL BE INSPECTED PER SECTION 9.1.

ADHESIVE ANCHOR RODS: ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.

HEADED STUDS: SHALL BE "H4L HEADED CONCRETE ANCHORS" FOR STUDS 5/8" DIAMETER AND SMALLER AND "S3L SHEAR CONNECTORS" FOR STUDS 3/4" DIAMETER AND LARGER AS MANUFACTURED BY NELSON STUD WELDING, INC. OR PRE-APPROVED EQUAL AND SHALL CONFORM TO AWS D1.1. ALL HEADED STUDS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS USING A NELSON WELD GUN, UNLESS NOTED OTHERWISE ON DETAILS. ALL WELDS SHALL BE MADE AND INSPECTED IN ACCORDANCE WITH AWS D1.1.

FINISH: STRUCTURAL STEEL SHALL BE PRIMER PAINTED, UNLESS NOTED OTHERWISE, AND SHALL BE CLEAN OF LOOSE RUST, LOOSE MILL SCALE, OIL, GREASE AND OTHER FOREIGN SUBSTANCES AND SHALL MEET THE REQUIREMENTS OF SSPC-SP1. WHERE STRUCTURAL STEEL IS NOTED TO BE PAINTED, ALL AREAS COMPRISING THE FAYING SURFACES OF BOLTED CONNECTIONS MADE WITH SLIP-CRITICAL TYPE BOLTS (A325SC OR A490SC) SHALL COMPLY WITH THE REQUIREMENTS OF THE RCSC SPECIFICATION. WHERE STRUCTURAL STEEL IS NOTED TO BE GALVANIZED, IT SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, A384, AND A385. ALL SURFACES WITHIN TWO INCHES OF ANY FIELD WELD LOCATION SHALL BE FREE OF MATERIALS THAT WOULD PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES. FIELD TOUCH-UP OF PRIMED, PAINTED, AND GALVANIZED SURFACES SHALL BE PERFORMED TO REPAIR COATING ABRASIONS, AS WELL AS TO PROTECT ALL AREAS AT CONNECTIONS.

CARPENTRY :

NAILS: CONNECTION DESIGNS ARE BASED ON NAILS WITH THE FOLLOWING PROPERTIES:

PENNYWEIGHT	DIAMETER (INCHES)	LENGTH (INCHES)
8d	0.131	2-1/2
10d	0.148	3
16d	0.148	3-1/2
20d	0.192	4

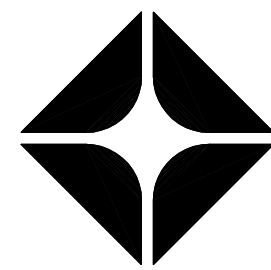
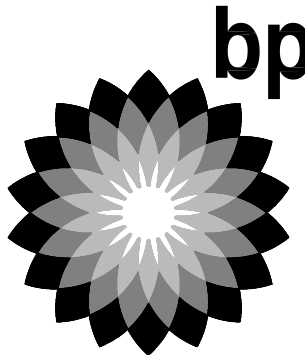
ALL NAILS AND STAPLES SHALL CONFORM TO ASTM F1667 INCLUDING SUPPLEMENT 1. FOR DIAPHRAGM OR SHEAR WALL NAILING THE FOLLOWING FASTENER TYPES MAY BE USED AT EQUIVALENT SPACING TO THAT SPECIFIED ON PLANS.

FASTENER TYPE	DIAMETER (INCHES)	LENGTH (INCHES)	EQUIVALENT SPACING (INCHES)		
8d COMMON WIRE	0.131	2-1/2	6	4	3
8d "DIPPED GALV. BOX"	0.131	2-1/2	6	4	3
8d "SHINY BOX"	0.113	2-1/2	4-1/2	3	2-1/2
14 GA. STAPLES	0.080	1-1/2*	6	4	3
16 GA STAPLES	0.072	1-1/2*	5	3	-
10d COMMON WIRE	0.148	3	6	4	3
10d "HOT DIPPED GALV. BOX"	0.148	3	6	4	3
10d "SHINY BOX"	0.131	3	4-1/2	3	2-1/4
16d COMMON WIRE	0.162	3-1/2	6	4	3
16d SINKER NAIL	0.148	3-1/4	5	3-1/4	2-1/2

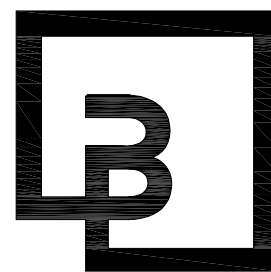
* BASED ON 15/32" PLYWOOD OR OSB.

WOOD SHEATHING (STRUCTURAL): SHEATHING ON ROOF SURFACES SHALL BE **PLYWOOD ONLY**. SHEATHING ON FLOOR AND WALLS SHALL BE PLYWOOD OR ORIENTED STRAND BOARD (OSB). PLYWOOD SHEATHING SHALL BE 5-PLY MINIMUM WHERE INDICATED AS PERFORMANCE CATAGORY 3/4" OR THICKER. WOOD SHEATHING SHALL BE "STRUCTURAL I" CONFORMING TO PS1-09 AND/OR PS2-10. ALL PANELS SHALL BEAR THE STAMP OF AN APPROVED GRADING AGENCY. SPAN RATING SHALL BE PROVIDED AS FOLLOWS: ROOF FRAMING AT 48" O.C. (48/24); ROOF FRAMING AT 24"O.C. (32/16); WALLS (32/16); ALL WOOD SHEATHED WALLS SHALL BE BLOCKED AT ALL PANEL EDGES UNLESS NOTED OTHERWISE.

CLIENT:



BP WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY: SJW	ALLIANCE ZADM:
CHECKED BY: SJW	BP REPA:
DRAWN BY: SAA	ALLIANCE PM:
VERSION:	PROJECT NO:
-	21730

DRAWING TITLE:

GENERAL NOTES

SHEET NO:

S3.2

S3.3

STATEMENT OF SPECIAL INSPECTIONS:

SPECIAL INSPECTION: SPECIAL INSPECTION SHALL BE PROVIDED PER THE REQUIREMENTS OF IBC SECTION 1704 AND 1705 AND AS NOTED HEREIN.

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
SOILS	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X		IBC 1705.6
	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X		
	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X		
	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X			
	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X		
STRUCTURAL STEEL	MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS		X		AISC 360 CHAPTER N5
	HIGH-STRENGTH BOLTING A. SNUG-TIGHT JOINTS		X		AISC 360 CHAPTER N5
	MATERIAL VERIFICATION OF STRUCTURAL STEEL A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360 B. MANUFACTURER'S CERTIFIED MILL TEST REPORTS		X	MANUFACTURER TO PROVIDE CERTIFIED MILL TEST REPORTS	AISC 360 CHAPTER N5 AISC 341 CHAPTER J6
			X		
	MATERIAL VERIFICATION OF WELD FILLER MATERIALS A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS LISTED IN GENERAL NOTES B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE		X	MANUFACTURER TO PROVIDE CERTIFICATE OF COMPLIANCE	AISC 360 CHAPTER N5
			X		
	INSPECTION OF WELDING A. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS B. MULTI-PASS FILLET WELDS C. SINGLE-PASS FILLET WELDS > 5/16" D. PLUG AND SLOT WELDS E. SINGLE-PASS FILLET WELDS ≤ 5/16" F. FIELD-INSTALLED WELDED STUDS G. WELDING OF STAIRS AND RAILING SYSTEMS	X		SPECIAL INSPECTIONS IN THIS SECTION ARE WAIVED WHERE FABRICATION IS PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5	AISC 360 CHAPTER N5 AISC 341 CHAPTER J6 AWS D1.1
		X			
		X			
		X	X		
		X	X		
	INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS		X		
STEEL PIPE PILES	GEOTECHNICAL ENGINEER TO MONITOR INSTALLATION AND LOAD TESTING	X			
CONCRETE	INSPECT REINFORCEMENT, INCLUDING PRE-STRESSING TENDONS, AND VERIFY PLACEMENT		X		ACI 318: CH 20, 25.2, 25.3, 26.6-1 TO 26.6-3, IBC 1908.4 ACI 318: 17.8.2 AISC 360 SECTION N7 ACI 318, CH 19
	ANCHORS CAST IN CONCRETE-PRIOR TO AND DURING PLACEMENT OF CONCRETE		X		
	VERIFY USE OF REQUIRED DESIGN MIX		X		
	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X			ASTM C172, C31 ACI 318: 26.4, 26.12 IBC 1908.10
	MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X		ACI 318: 26.5.3 TO 26.5.5 IBC 1908.9
	MATERIAL VERIFICATION OF REINFORCEMENT STEEL FOR ASTM A615 REINFORCING		X	MANUFACTURER SHALL PROVIDE MILL TEST REPORTS. CONTINUOUS INSPECTION FOR ALL WELDS GREATER THAN 5/16" FILLET. PERIODIC INSPECTION FOR FILLET WELD 5/16" AND SMALLER	ACI 318: 26.6.4 AWS D1.4 IBC 1705.3.1
	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (MECHANICAL ANCHORS INSTALLED IN ANY DIRECTION AND ADHESIVE ANCHORS INSTALLED DOWNWARD)		X	PERIODIC INSPECTION TO INCLUDE A QUANTITY OF 10% WITH A MINIMUM OF (5) ANCHORS INSPECTED PER INSTALLER ON A DAILY BASIS	ACI 318: 17.8.2 MFR EVAL REPORT MFR PUBLISHED INSTALLATION INSTRUCTIONS
	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (ADHESIVE ANCHORS INSTALLED HORIZONTAL OR UPWARDLY INCLINED)	X			ACI 318: 17.8.2 MFR EVAL REPORT MFR PUBLISHED INSTALLATION INSTRUCTIONS
	TESTING OF MATERIALS		X		IBC 1705.3.2

TESTING AND SPECIAL INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER WORK IS PERFORMED ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO OWNER, CONTRACTOR, BUILDING OFFICIAL, ARCHITECT AND STRUCTURAL ENGINEER.

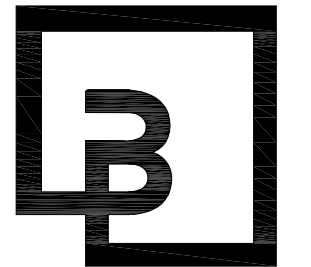
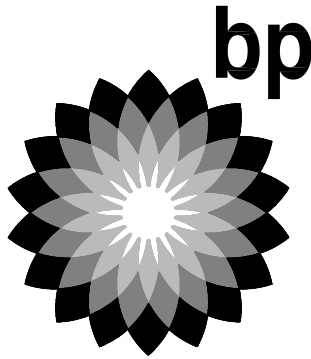
STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY THE STRUCTURAL ENGINEER OF RECORD OR DESIGNATED REPRESENTATIVE IN ACCORDANCE WITH IBC 1704.6. STRUCTURAL OBSERVATION SHALL BE PERFORMED AS FOLLOWS:

- » PERIODIC VISUAL OBSERVATION OF STRUCTURAL SYSTEMS FOR GENERAL CONFORMANCE TO CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES.
- » REVIEW OF TESTING AND INSPECTION REPORTS.
- » REPORTS SHALL BE PREPARED FOR EACH SITE VISIT AND SHALL BE DISTRIBUTED TO ARCHITECT.

GENERAL CONTRACTOR SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL INCLUDE ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.

ABBREVIATION LIST					
@	AT	ELEV.	ELEVATOR	MTL	METAL
A.B.	ANCHOR BOLT	ENGR.	ENGINEER	N.F.	NEAR FACE
ADD'L	ADDITIONAL	EQ.	EQUAL	N.S.	NEAR SIDE
A.F.F.	ABOVE FINISH FLOOR	E.W.	EACH WAY	NTS	NOT TO SCALE
ALT.	ALTERNATE	EXP.	EXPANSION	O.C.	ON CENTER
ARCH.	ARCHITECTURAL	EXT.	EXTERIOR	OPN'G	OPENING
BLD'G	BUILDING	FDN	FOUNDATION	OPP.	OPPOSITE
BLK'G	BLOCKING	F.F.	FAR FACE	P.A.F.	POWDER ACTUATED FASTENER
BM	BEAM	FLR	FLOOR	PERP.	PERPENDICULAR
B.O.F.	BOTTOM OF FOOTING	F.O.M.	FACE OF MASONRY	PL	PLATE
B.O.T.	BOTTOM	F.O.S.	FACE OF STUD	P.P.	PARTIAL PENETRATION
BRG	BEARING	FRM'G	FRAMING	P.P.T.	PRESERVATIVE PRESSURE TREATED
BTWN	BETWEEN	F.R.T.	FIRE RETARDANT TREATED	P.S.F.	POUNDS PER SQUARE FOOT
B.U.	BUILT UP	F.S.	FAR SIDE	PSL	PARALLAM
(C=)	CAMBER	FTG	FOOTING	P.T.	POST TENSION
CANT.	CANTILEVER	GA.	GAGE/GAUGE	PW.	PLYWOOD
C.F.S.	COLD-FORMED STEEL	GALV.	GALVANIZED	REINF.	REINFORCING
C.J.	CONTROL/CONSTRUCTION JOINT	GL.	GLULAM	REQ'D	REQUIRED
CL	CENTERLINE	GR.	GRADE	SCHED.	SCHEDULE
CLR.	CLEARANCE	GWB	GYPSON WALL BOARD	S.C.L.	STRUCTURAL COMPOSITE LUMBER
CMU	CONCRETE MASONRY UNIT	HDR	HEADER	SHT'G	SHEATHING
COL.	COLUMN	HGR	HANGER	SIM.	SIMILAR
CONC.	CONCRETE	HORIZ.	HORIZONTAL	S.O.G.	SLAB ON GRADE
CONN.	CONNECTION	HSS	HOLLOW STRUCTURAL SECTION	SQ.	SQUARE
CONST.	CONSTRUCTION	HT	HEIGHT	STD	STANDARD
CONT.	CONTINUOUS	INT.	INTERIOR	STIFF.	STIFFENER
CONTR.	CONTRACTOR	JST	JOIST	STL	STEEL
COORD.	COORDINATE	JT	JOINT	STRUCT.	STRUCTURAL
C.P.	COMPLETE PENETRATION	L	ANGLE	T&B	TOP & BOTTOM
CTR'D	CENTERED	L.L.	LIVE LOAD	T&G	TONGUE AND GROOVE
C.Y.	CUBIC YARD	LLH	LONG LEG HORIZONTAL	THR'D	THREADED
DBL.	DOUBLE	LLV	LONG LEG VERTICAL	T.O.F.	TOP OF FOOTING
D.F.	DOUGLAS FIR	LOC.	LOCATION	T.O.S.	TOP OF STEEL
DIA. OR Ø	DIAMETER	LSL	LAMINATED STRAND LUMBER	TRT'D	TREATED
DIAG.	DIAGONAL	LVL	LAMINATED VENEER LUMBER	TYP.	TYPICAL
DIM.	DIMENSION	MAX.	MAXIMUM	U.N.O.	UNLESS NOTED OTHERWISE
D.L.	DEAD LOAD	M.B.	MACHINE BOLT	U.T.	ULTRASONIC TESTED
DWG	DRAWING	MECH.	MECHANICAL	VERT.	VERTICAL
DWL	DOWEL	MEZZ.	MEZZANINE	W/	WITH
(E)	EXISTING	MFR	MANUFACTURER	W.P.	WORK POINT
EA.	EACH	MIN.	MINIMUM	WT	WEIGHT
E.F.	EACH FACE	MISC.	MISCELLANEOUS	W.W.R.	WELDED WIRE REINFORCING
EL.	ELEVATION				

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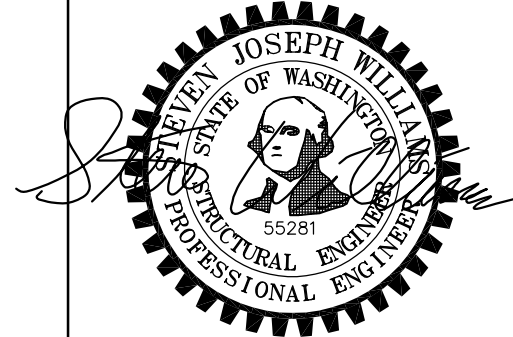


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DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY: SJW	ALLIANCE ZADM:
CHECKED BY: SJW	BP REPA:
DRAWN BY: SAA	ALLIANCE PM:
VERSION: -	PROJECT NO: 21730










































DRAWING TITLE:

GENERAL NOTES




SHEET NO:

S3.4

HEAT PUMP PACKAGE ROOFTOP UNIT SCHEDULE

MARK	MANUFACTURER/MODEL #	SERVICE	COOLING							CONDENSING TEMP., °F	HEATING			INDOOR FAN			HEATER	ELECTRICAL DATA						WEIGHT (LBS.)	MIN. OUTSIDE AIR CFM	LOCATION	REMARKS		
			NOMINAL TONS	TOTAL MBH	SENSIBLE MBH	ENT. AIR DB, °F	ENT. AIR WB, °F	EER	SEER		47°F MBH	17°F MBH	HSPF (COP)	CFM	ESP IN.WG.	HP		KW	VOLTS	PHASE	FREQ. (Hz)	COMPR. RLA	COMPR. LRA					MCA	MOCP
	"TRANE" WHC060	STORE	5.0	61.0	50.9	75.0	61.0	--	16.4	95	57.8	34.4	9.0	2,000	0.6	1.0	9	208	3	60	25.0	164	63	70	900	300	ROOF	            	
	"TRANE" WS090	STORE	7.5	84.5	78.1	75.0	61.0	11.8	--	95	86.0	30	12.0	3,100	0.6	1.0	13.5	208	3	60	17.5	110	85	100	820	300	ROOF	            	
<div><div><div> ELECTRIC HEATING/ELECTRIC COOLING PACKAGED HEAT PUMP ROOFTOP UNIT.</div><div> HIGH EFFICIENCY, STANDARD INDOOR FAN. BELT DRIVE</div><div> SET MINIMUM OSA DAMPER FOR 300 CFM</div></div><div><div> DUCT SMOKE DETECTOR IN RETURN AIR PLENUM.</div><div> PROVIDE WSEC PROGRAMMABLE THERMOSTAT & SENSORS.</div><div> R-410 REFRIGERANT.</div><div> MERV 13 FILTERS</div></div><div><div> PROVIDE THE FOLLOWING FACTORY INSTALLED OPTIONS: A. 14" HIGH ROOF CURB. B. COMPRESSOR HARD START KIT. C. CRANKCASE HEATER. D. FILTER RACK KIT.</div><div> FULLY MODULATING LOW LEAK ECONOMIZER</div></div><div><div> FACTORY INSTALLED POWER EXHAUST.</div><div> DISCONNECT SWITCH.</div><div> SINGLE POINT ELECTRICAL CONNECTION, UNIT WITH DEFROST CYCLE.</div><div> PROVIDE FAULT DETECTION & DIAGNOSTICS.</div></div></div>																													

ENERGY RECOVERY VENTILATOR (DOAS)

MARK	MANUFACTURER & MODEL	FAN			ELECTRICAL										SERVICE	WEIGHT (LBS)	REMARKS
		SUPPLY CFM	EXHAUST CFM	MOTORS HP	ESP W.G.	FLA	VOLTAGE	PHASE	Hz	MCA	MOCP	SENSIBLE RECOVERY	HEATER KW	SUPPLY TEMP			
	SOLER & PALAU TRC 500	400	400	--	.50"	--	120	1ø	60	8.8	15	77%	--	57°F	STORE	141	
 WITH MOUNTING HARDWARE (ALL THREAD ROD, UNI STRUT, SPRING ISOLATORS), FILTER RACK AND FILTER.																	




EXHAUST FAN SCHEDULE

MARK	SERVICE	LOCATION	EXHAUST AIR CFM	EXT. STATIC PRESSURE IN. W.G.	RPM	ELECTRICAL DATA				WEIGHT LBS.	MANUFACTURER & MODEL #	REMARKS
						MOTOR WATTS IN. W.G. (HP)	VOLTS	PHASE	Hz			
<div>EF 1</div>	RESTROOMS	CEILING	220	0.250	—	48	115	1	60	24	"GREENHECK" SP—A200	<div>1234</div>
<div>EF 2</div>	SLUSH MACHINE	ROOF	500	0.375	936	(1/4)	115	1	60	11	"CAPTIVEAIRE" DR30HFA	<div>345678</div> THERMOSTAT CONTROLLED
<div><div><div>1</div>CEILING MOUNTED EXHAUST FAN.</div><div><div>2</div>INTERLOCK WITH LIGHT FIXTURE.</div><div><div>3</div>WITH BACKDRAFT DAMPER.</div><div><div>4</div>WITH FLEXIBLE DUCT CONNECTION.</div></div> <div><div>5</div>MUSHROOM TYPE FAN.</div> <div><div>6</div>SPEED CONTROLLER.</div> <div><div>7</div>PROVIDE WITH 12" ROOF CURB.</div> <div><div>8</div>DISCONNECT SWITCH.</div>												

AIR DEVICE SCHEDULE





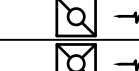
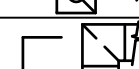
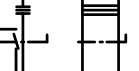
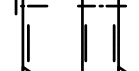

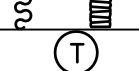
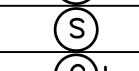
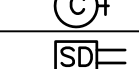
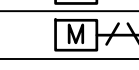
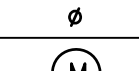

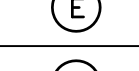


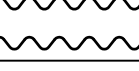

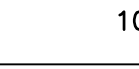
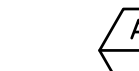
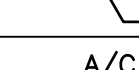



MARK	NECK SIZE	DIFFUSER FACE OR CEILING GRID SIZE (INCHES)	CFM RANGE	TYPE				MOUNTING		DUTY				MFR.	MODEL NO.	REMARKS
				DIFFUSER	REGISTER	GRILLE	LOUVER	LAY-IN	SURFACE	SUPPLY	RETURN	EXHAUST	TRANSFER			
SD-1	8"ø	12"x12"	0-190	X	-	-	-	X	-	X	-	-	-	TITUS	PAS	①②③
SD-2	12"ø	24"x24"	200-470	X	-	-	-	X	-	X	-	-	-	TITUS	PAS	①②③
SD-3	18x12	19.75x13.75	325-550	-	X	-	-	-	X	X	-	-	-	TITUS	301 FL	①②
RG-1	-	PER DWGS	PER DWGS	-	-	X	-	X	-	-	X	-	-	TITUS	50-F	②③
TG-1	-	PER DWGS	PER DWGS	-	-	X	-	X	-	-	X	-	-	TITUS	50-F	③
<div>① PROVIDE OPPOSED BLADE DAMPER.</div> <div>② TYPE AND CFM SHALL BE AS INDICATED ON DRAWING M1.0 AT EACH AIR DEVICE. NC SHALL BE 35 OR LESS.</div> <div>③ SELECTION OF THE FINISHES OF AIR DISTRIBUTION DEVICES BY INTERIOR DESIGNER/ARCHITECT.</div>																

AIR CURTAIN SCHEDULE

MARK	MANUFACTURER & MODEL	FAN			ELECTRICAL				SERVICE	ACOUSTICS MEASURE 10" FROM NOZZLE dBA	DIMENSIONS (in)		WEIGHT (LBS)	REMARKS
		MAX. FPM	MAX. CFM	MOTORS HP	FLA	VOLTAGE	PHASE	Hz			LENGTH	DEPTH		
	MARS LPN2-72-1UA-OB	1,800	1,800	1/6	2.6	115	1	60	MAIN DOOR	53	72	9	58	
 MICROSWITCH CONTROL. MOUNT SWITCH SUCH THAT AIR CURTAIN STARTS WHEN DOOR OPENS. PROVIDE (2) MAGNETIC SWITCHES (ONE PER EACH DOOR), MODEL #99018.														

Minimum Outside Air Ventilation Schedule													
Ventilation Rate per 2018 IMC 403 (based on ASHRAE Std. 62.1)													
Equip. Tag	Zone	Occupancy Category	Area (sf)	People Outdoor Air Rate (cfm/person) Table 403.3	Zone Population. Number of people in space.*	Area Outdoor Air Rate (cfm/sf) (Table 403.3)	Occupant Density (#/1000 sf)	Breathing Zone Outdoor Air Flow Vbz/(CFM)	Zone Air Distribution Effectiveness Ez (Table 403.3.1.2)	Zone Outdoor Air Flow (Voz)/(CFM)	System Ventilation Efficiency Ev (Table 403.3.2.3.2)	Minimum Outdoor Air Intake Flow Vot/(CFM)	Proposed Design Outdoor Air Vot/(CFM)
ERV-1	Sales	Retail	1344	7.5	20	0.12	15	311.28	1.00	311.28	0.90	280	300
	Prep/Utility Rm	Storage Rms	444	0.0	0	0.12	0	53.28	1.00	53.28	0.90	48	50
	Office	Office spaces	64	5.0	1	0.06	7	8.84	1.00	8.84	0.90	8	10
	Hall	Corridors	93	NA	NA	0.06	NA	NA	NA	NA	NA	6	10
											Total	342	370
* In some cases occupancy is less than maximums as allowed per 403.3 exception, in no case shall the occupancy be less than one half per Table 403.3.													

LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	SA/SUP	SUPPLY AIR (RISE/DROP)
	RA/RET	RETURN AIR DUCT (RISE/DROP)
	EA/EXH	EXHAUST AIR DUCT (RISE/DROP)
	CD/SR	CEILING DIFFUSER/SUPPLY REGISTER (ARROWHEAD REPRESENTS NUMBER OF THROW) (4-WAY TYPICAL IF NO ARROWS)
	RR/RG	RETURN REGISTER/GRILLE
	ER/EG	EXHAUST REGISTER/GRILLE
		RECTANGULAR DUCT ELBOW WITH TURNING VANES
	FC	FLEXIBLE CONNECTION
	(L)	DUCT LINING (1" THICK UNLESS OTHERWISE NOTED)
		SINGLE LINE DUCT BRANCH TAKE-OFF
		DUCT TRANSITION (RECTANGULAR TO ROUND)
	FLEX	FLEXIBLE DUCT (4"-0" MAXIMUM)
	T-STAT	PROGRAMMABLE THERMOSTAT
		TEMPERATURE SENSOR
		CO2 SENSOR
	SD	DUCT SMOKE DETECTOR
	MD	MECHANICAL DAMPER
	DIA.	DIAMETER
		FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
		FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
		FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
	P.O.C.	POINT OF CONNECTION
		FLEXIBLE DUCT
<div><div> SD-1</div><div> 100</div></div> (SD-SUPPLY DIFFUSER, RD-RETURN DIFFUSER, E-EXHAUST) AIR QUANTITY IN CFM		
		MECHANICAL EQUIPMENT DESIGNATION DESIGNATED NUMBER
A/C , AC	AC	AIR CONDITIONING
BDD		BACK DRAFT DAMPER
CB		CIRCUIT BREAKER
CLG.		CEILING
CONN.		CONNECT/CONNECTION
CONT.		CONTINUATION
CONT'R		CONTRACTOR
CFM		CUBIC FEET PER MINUTE
CU		CONDENSING UNIT
DET.		DETAIL
DISC.		DISCONNECT
DTR		DOWN THRU ROOF
EF		EXHAUST FAN
(E)		EXISTING
E.A.T.		ENTERING AIR TEMPERATURE
GA.		GAGE/GAUGE
GC		GENERAL CONTRACTOR
GF		GAS FURNACE
HVAC		HEATING, VENTILATING, AND AIR CONDITIONING
MCA		MINIMUM CIRCUIT AMPACITY
MFR.		MANUFACTURER
MECH.		MECHANICAL
MOCP		MAXIMUM OVERCURRENT PROTECTION
(N)		NEW
OA/OSA		OUTSIDE AIR
PH		PHASE
RAD		RETURN AIR DUCT
SAD		SUPPLY AIR DUCT
S/S		STAINLESS STEEL
TYP.		TYPICAL
UON		UNLESS OTHERWISE NOTED
UTR		UP THRU ROOF
V		VOLTS

GENERAL NOTES

- CONSTRUCTION TO CONFORM WITH:
 - 2018 WASHINGTON STATE BUILDING CODE, WITH LOCAL AMENDMENTS
 - 2018 WASHINGTON STATE MECHANICAL CODE, WITH LOCAL AMENDMENTS
 - 2018 WASHINGTON STATE PLUMBING CODE, WITH LOCAL AMENDMENTS
 - 2018 WASHINGTON STATE ELECTRICAL CODE, WITH LOCAL AMENDMENTS
 - 2018 WASHINGTON STATE FIRE CODE, WITH LOCAL AMENDMENTS
 - 2018 WASHINGTON STATE ENERGY CODE, WITH LOCAL AMENDMENTS
- THE CONTRACTOR IS RESPONSIBLE FOR PERMIT FEES.
- THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT, TRANSPORTATION AND SERVICES NECESSARY FOR COMPLETION OF THE WORK. ALL MATERIALS AND WORK SHALL COMPLY WITH APPLICABLE CODES AND GOVERNING REGULATIONS AND MEET THE APPROVAL OF THE LOCAL JURISDICTION.
- ANY MATERIAL, ARTICLE OR PIECE OF EQUIPMENT OTHER THAN THAT INDICATED SHALL NOT BE USED UNLESS APPROVED IN WRITING BY THE ENGINEER AND ANY CHANGES IN MECHANICAL, ELECTRICAL AND/OR OTHER SYSTEMS REQUIRED DUE TO SUCH SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR; AND AT NO ADDITIONAL COST TO THE OWNER.
- TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS BEFORE, DURING AND AFTER INSTALLATION. IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
- THREE SETS OF OPERATING AND MAINTENANCE MANUALS SHALL BE SUBMITTED UPON COMPLETION OF PROJECT.
- IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN GUARANTEE AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. GUARANTEE SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY EQUIPMENT PROVIDED.

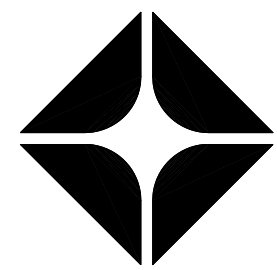
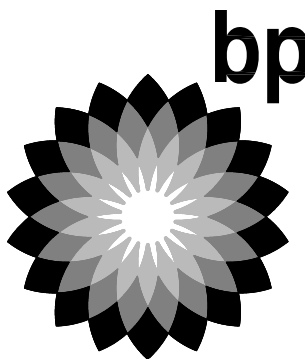
DRAWING SCHEDULE

SHEET NUMBER	DESCRIPTION
M0.1	EQUIP.SCHED.LEGEND,NOTES
M0.2	MECHANICAL SPECIFICATIONS
M1.0	MECHANICAL FLOOR PLAN
M1.1	MECHANICAL ROOF PLAN
M2.0	MECHANICAL DETAILS
M2.1	MECHANICAL CONTROLS
M3.0	ENERGY FORMS

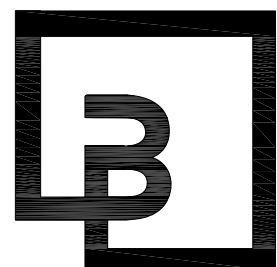
ABOSSEIN #223054

Abossein
Engineering,
L.L.C.
MECHANICAL - ELECTRICAL
CIVIL - LEED
FIRE PROTECTION
18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
FAX: (425) 462-9451
E-Mail: cservice@abossein.com
www.abossein.com

CLIENT:



BP WEST COAST PRODUCTS, LLC

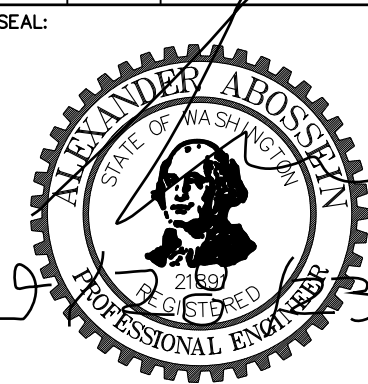


Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO. DATE REVISION DESCRIPTION

SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

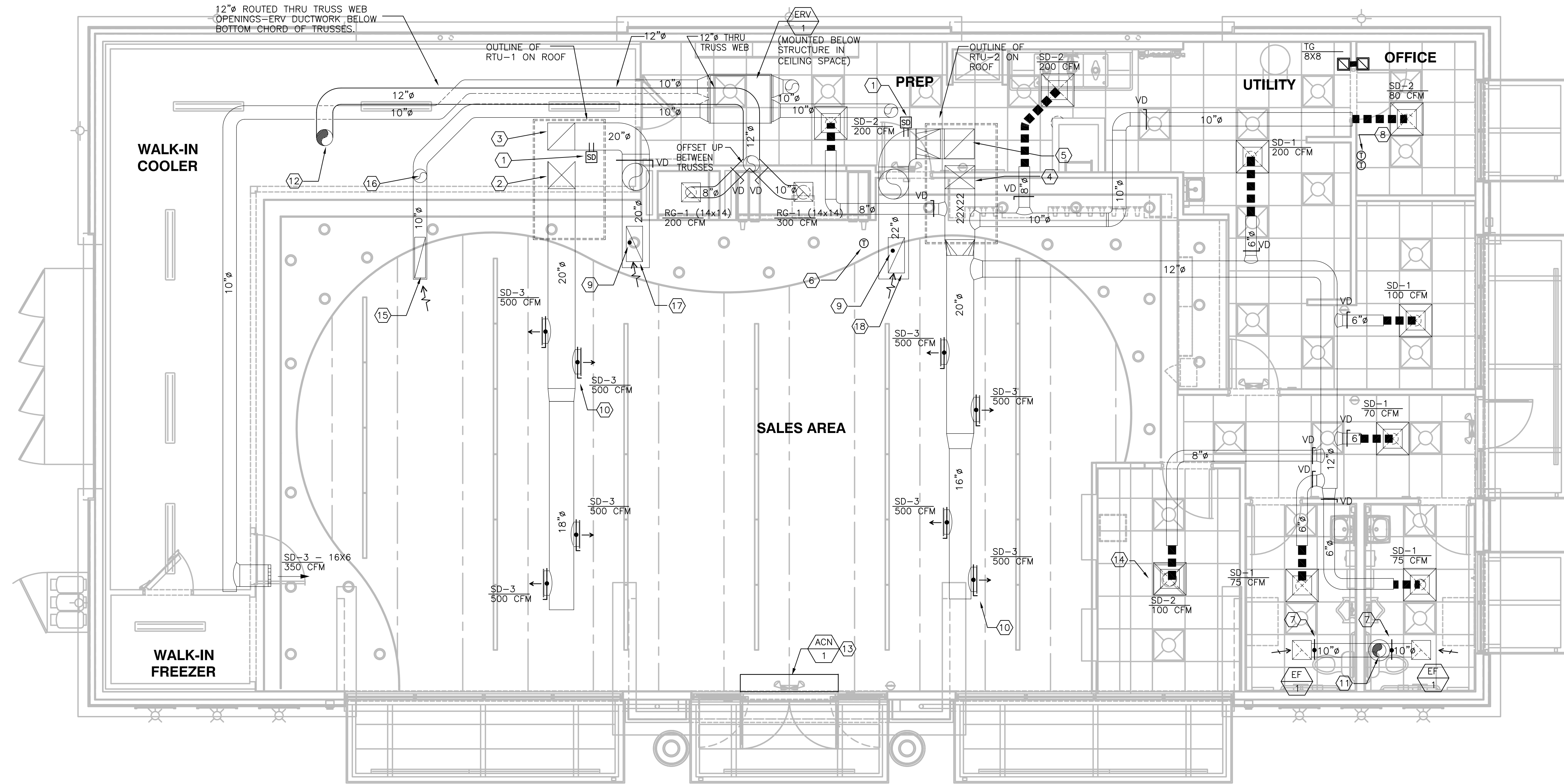
SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

NOTE:
CONTRACTOR SHALL PROVIDE PERFORMANCE TEST CERTIFICATE TO OWNER BEFORE FINAL APPROVAL. TEST SHALL VERIFY PROPER OPERATION, RATE OF EXHAUST FAN AND MAKEUP AIR AT NORMAL OPERATING CONDITIONS. MECHANICAL CONTRACTOR SHALL PERFORM AND COMPLETE TEST.

NOTE:
EXPOSED DUCTWORK BETWEEN OR THRU WEB TRUSS OPENINGS. COORDINATE PAINTING AND COLOR OF DUCTWORK WITH ARCHITECT. DUCTWORK SHALL BE CLEANED, DEGREASED AND PAINTED PRIMER GRAY PRIOR TO PAINTING. EXPOSED DUCTWORK SHALL BE PAINT GRIP SPIRAL LOCK - NO GALVANIZING DUCTWORK WITHIN EXPOSED AREA. COORDINATE COLOR WITH ARCHITECT (TYPICAL).

NOTE:
ALL DUCT OPENINGS AND AIR DISTRIBUTION COMPONENTS SHALL BE PROTECTED DURING CONSTRUCTION PER JURISDICTIONAL REQUIREMENTS.

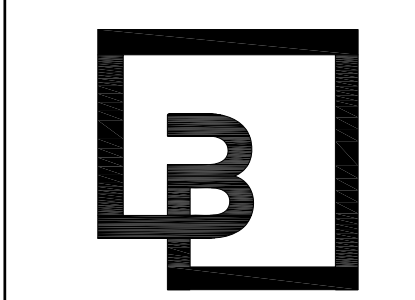
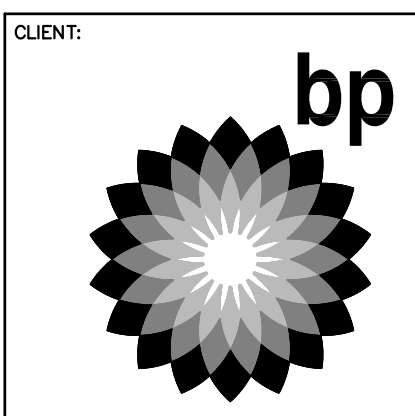
NOTE:
FLEXIBLE DUCTWORK SHALL BE A MAXIMUM OF 5 FT .



PLAN KEYNOTES:

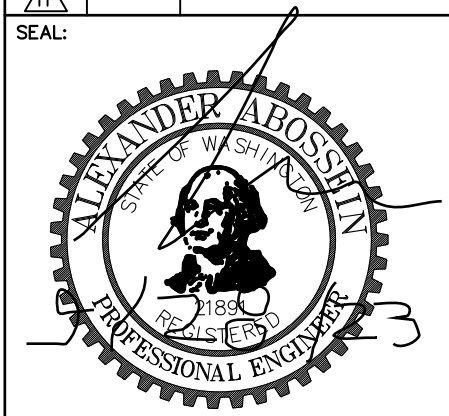
- SMOKE DETECTOR IN THE RETURN AIR PLENUM TO SHUT DOWN PACKAGED ROOFTOP UNIT UPON SMOKE DETECTION. COORDINATE WITH FIRE ALARM CONTRACTOR. COORDINATE FIRE ALARM OPERATION AND TESTING WITH FIRE DEPT. VERIFY LOCATION PER LOCAL CODES.
- 20x20 SUPPLY AIR DUCT WITH 1" SOUND LINING FROM RTU-1 ON ROOF.
- 20x20 RETURN AIR DUCT WITH 1" SOUND LINING FROM RTU-1 ON ROOF.
- 20x20 SUPPLY AIR DUCT WITH 1" SOUND LINING FROM RTU-2 ON ROOF.
- 20x20 RETURN AIR DUCT WITH 1" SOUND LINING FROM RTU-2 ON ROOF.
- THERMOSTAT TO ENERGIZE EF-2. SET FAN TO ENERGIZE AT 77°F.
- BACKDRAFT DAMPER.
- PROGRAMMABLE MASTER THERMOSTAT, 48" AFF.
- THERMOSTAT REMOTE SENSOR SENSOR INSIDE RETURN DUCT.
- MANUAL VOLUME DAMPER.
- 10"Ø EXHAUST RISER AIR DUCT UP TO ROOF JACK & CAP W/BIRDSCREEN
- 12"Ø EXHAUST AIR DUCT UP TO EF-2 ON ROOF.
- AIR CURTAIN, SEE M0.1 FOR SPEC.
- EDGE OF DIFFUSER GRILLES SHALL BE NO LESS THAN 8" FROM ANY FASCIA.
- 8X30 GALVANIZED SCREENED OPENING FACING TOWARD ROOF.
- 10"Ø OFFSET UP BETWEEN TRUSS SPACE
- 12X26 GALVANIZED SCREENED OPENING FACING TOWARD ROOF. AIR BALANCE FOR 2000CFM
- 14X26 GALVANIZED SCREENED OPENING FACING TOWARD ROOF. AIR BALANCE FOR 5000CFM

01 FLOOR PLAN - HVAC
SCALE: 1/4"=1'-0"
NORTH



Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
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NO.	DATE	REVISION DESCRIPTION
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DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
1105 MARVIN ROAD NE
@ MARTIN WAY E
LACEY, WASHINGTON

FACILITY #7190

DESIGNED BY:	ALLIANCE ZADM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 22349

DRAWING TITLE:
MECHANICAL FLOOR PLAN

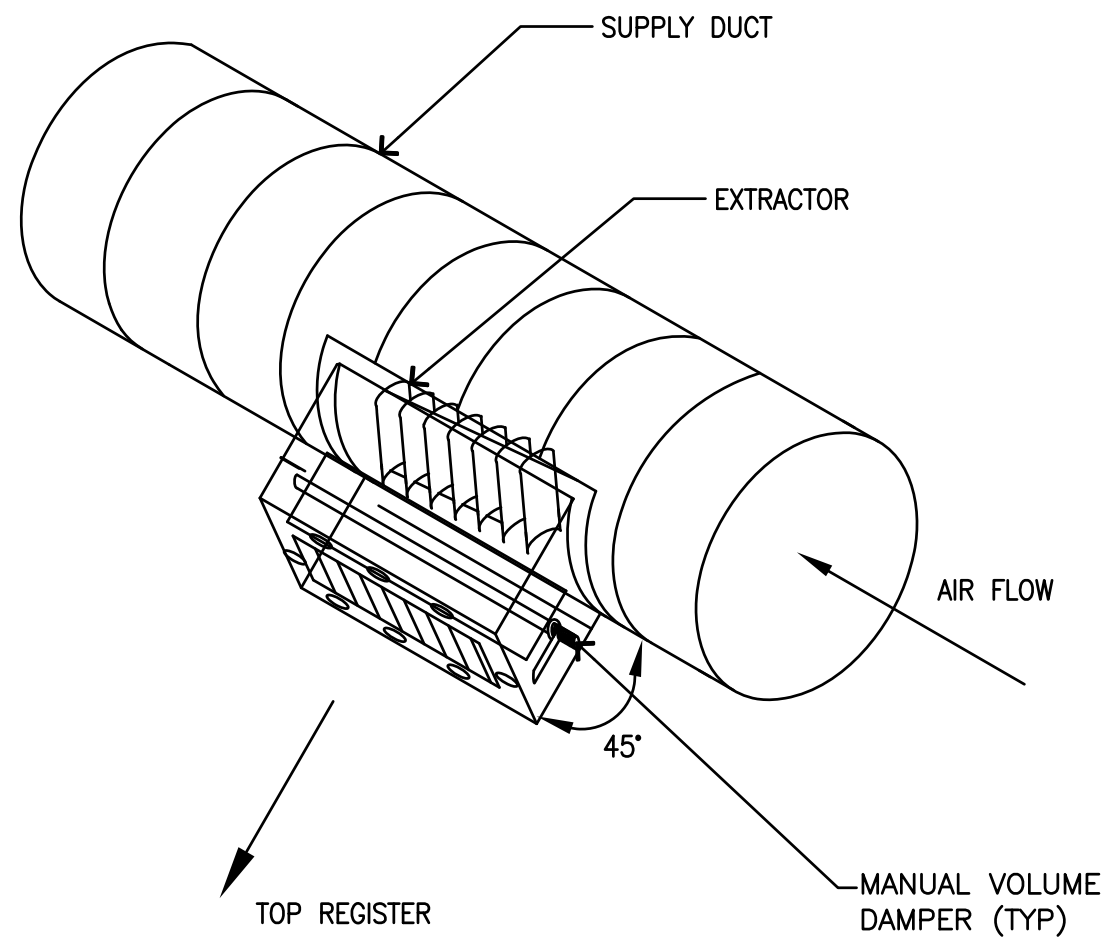
SHEET NO:

M1.0

JN #223025

Abossein Engineering

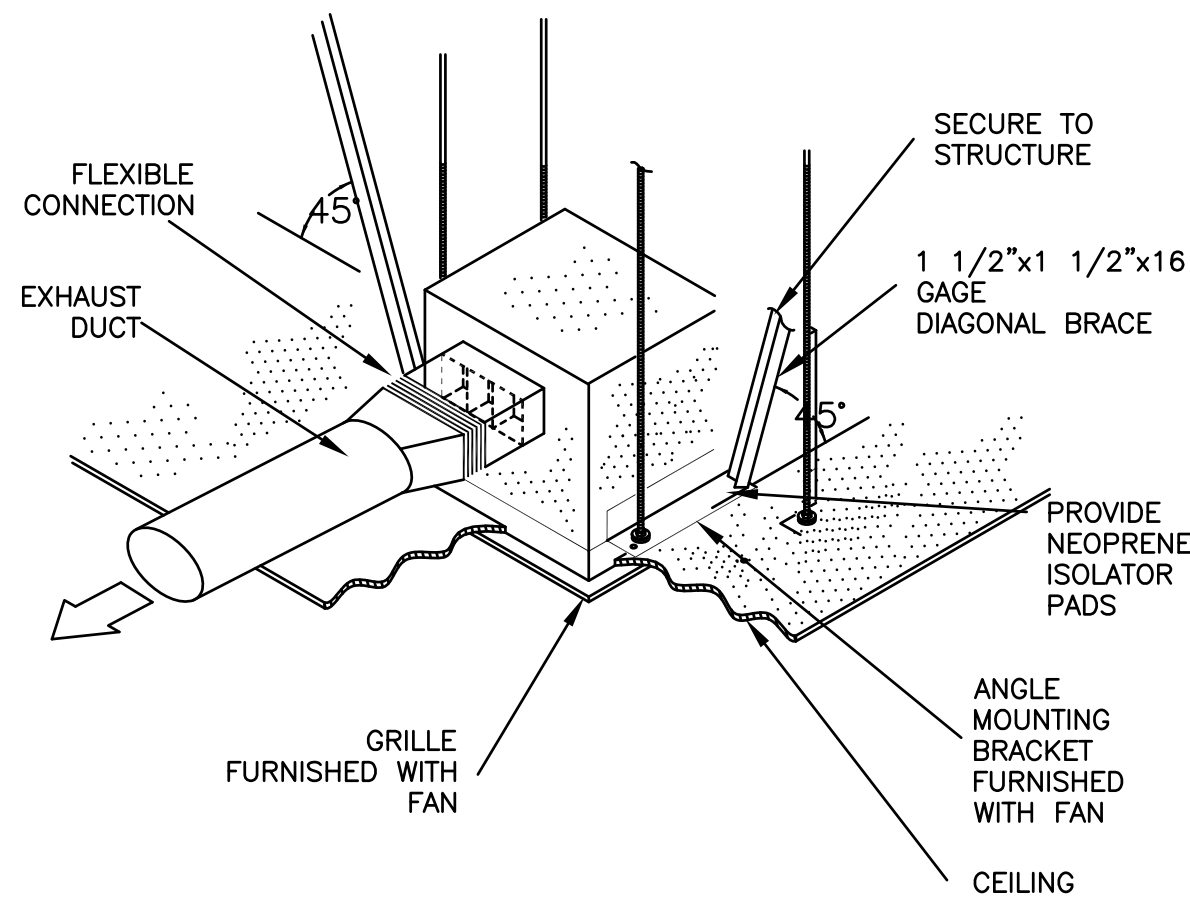
MECHANICAL - ELECTRICAL
FIRE PROTECTION - ENERGY, CIVIL
18465 NE 68th ST #200
REDMOND, WA 98052
PH: (425) 462-9441
FAX: (425) 462-9451
E-Mail: general@abossein.com
Website: www.abossein.com



SIDE REGISTER DETAIL

N.T.S.

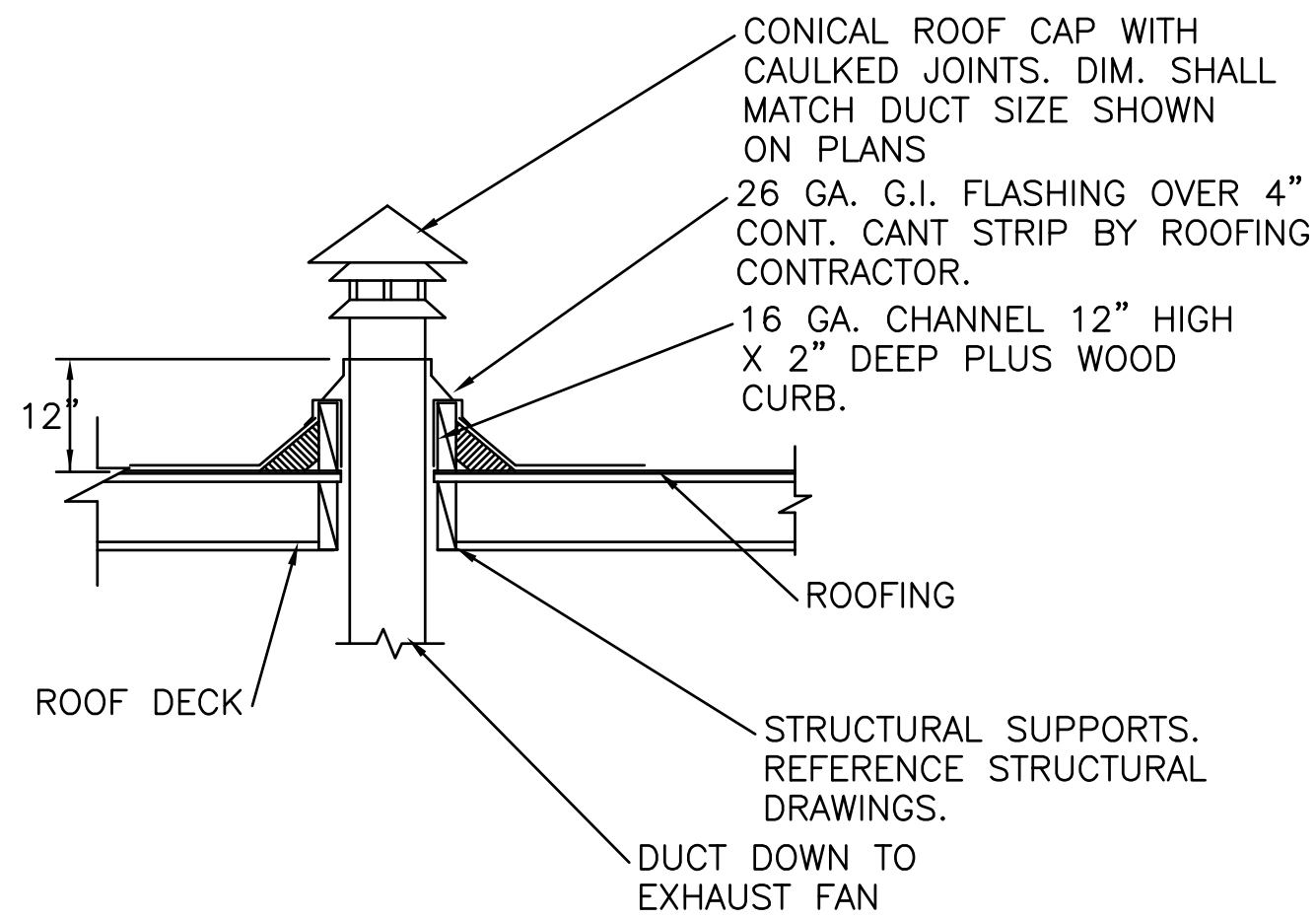
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CEILING EXHAUST FAN DETAIL

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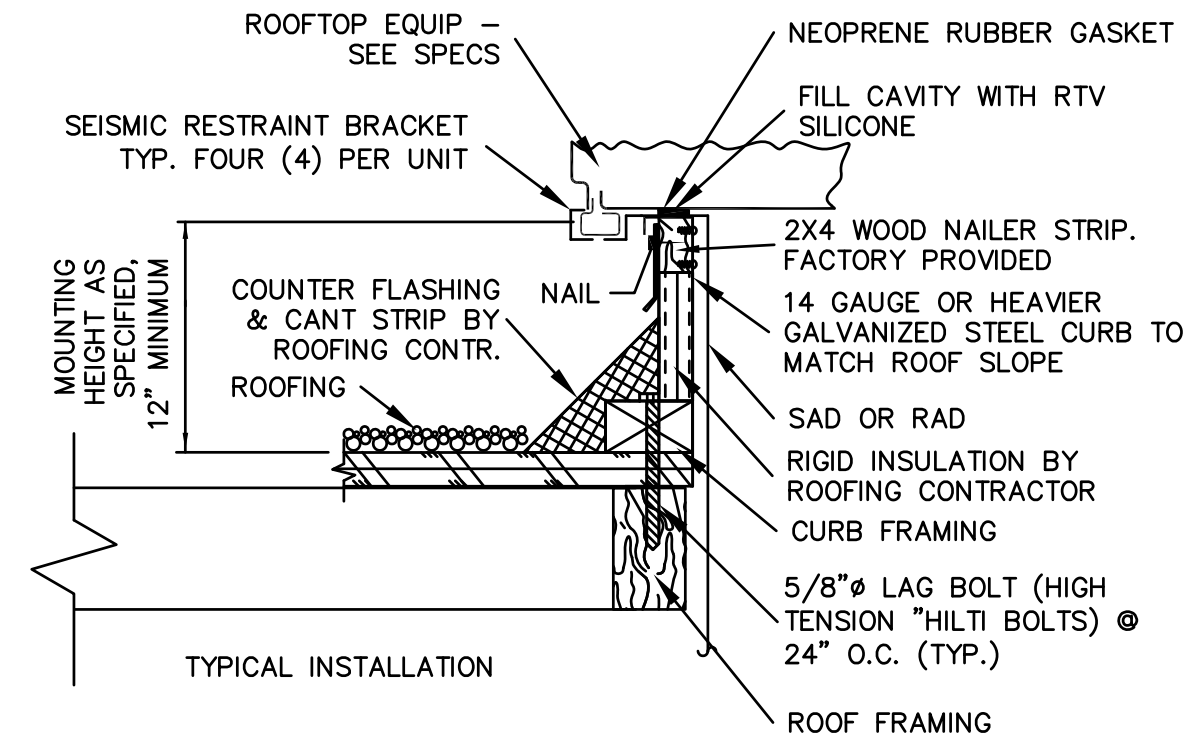
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ROOF JACK DETAIL

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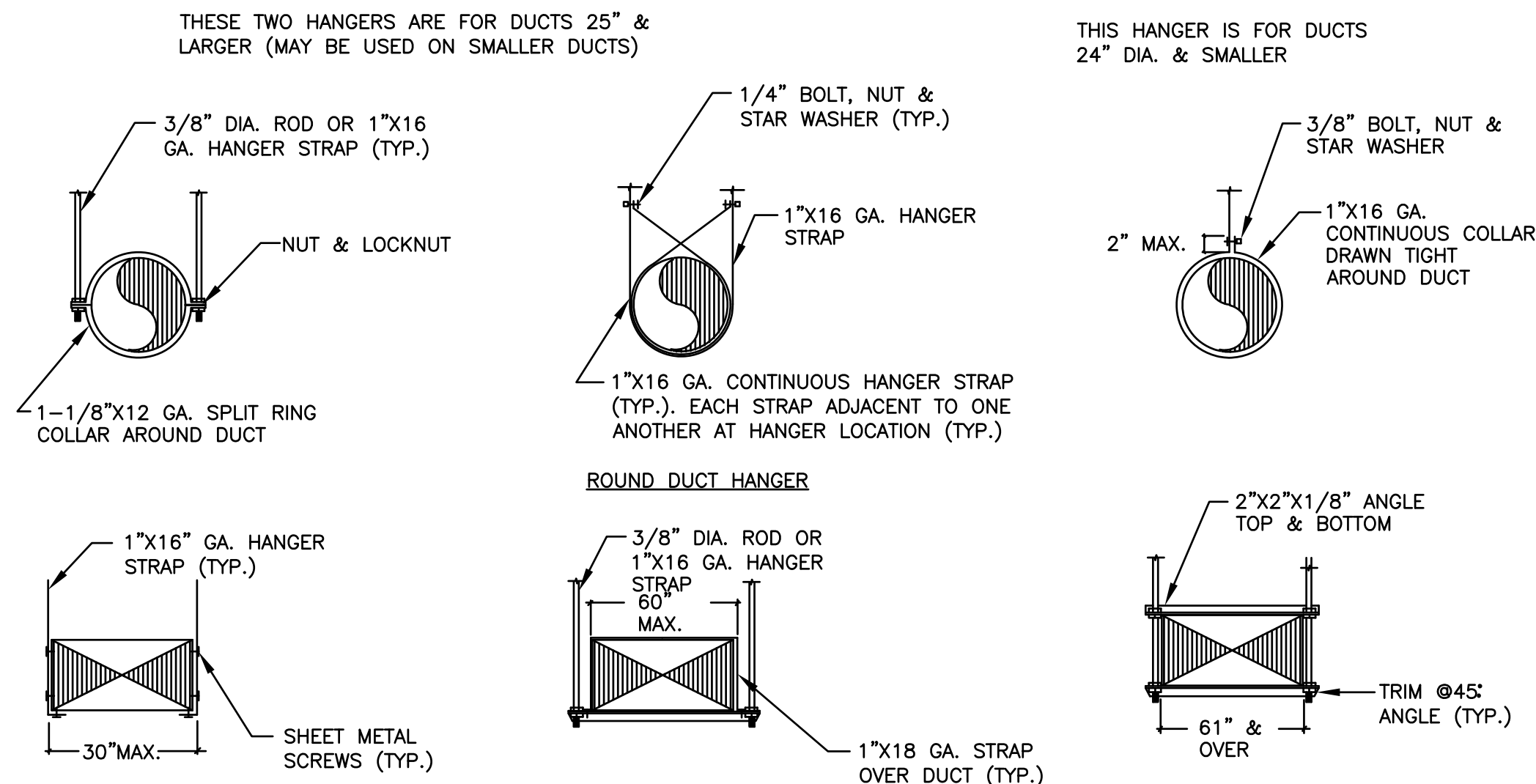
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CURB ATTACHMENT TO ROOF

N.T.S.

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- NOTES:
- REFER TO SPECIFICATIONS FOR HANGER SPACINGS.
 - ATTACHMENTS TO OVERHEAD STRUCTURE SHALL BE MADE IN ACCORDANCE WITH STRUCTURAL ENGINEER'S REQUIREMENTS AND WEIGHT LIMITATIONS. ALL ATTACHMENT METHODS TO STRUCTURE SHALL BE SUBMITTED TO STRUCTURAL ENGINEER FOR REVIEW.

DUCT SUPPORT DETAIL

N.T.S.

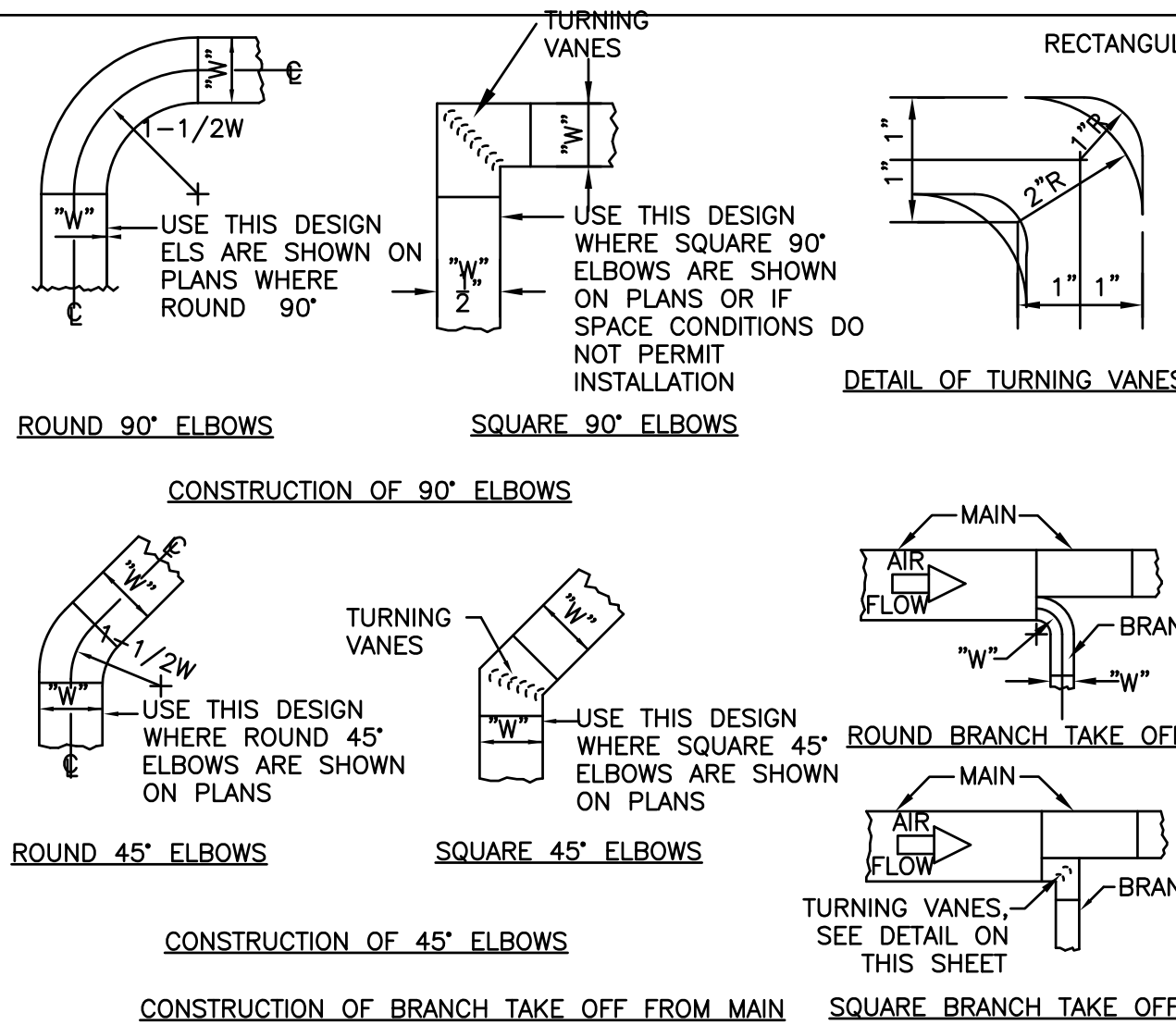
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DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESSES			
RECTANGULAR DUCTS			
MAXIMUM SIZE (INCHES)	STEEL (MINIMUM THICKNESS, NOMINAL)	ALUMINUM (MINIMUM THICKNESS, NOMINAL)	
THROUGH 12	0.022 INCH (26 GAGE, GALV.)	0.020 INCH (NO. 24 B&S GAGE)	
13 THROUGH 30	0.028 INCH (24 GAGE, GALV.)	0.025 INCH (NO. 22 B&S GAGE)	
31 THROUGH 54	0.034 INCH (22 GAGE, GALV.)	0.032 INCH (NO. 20 B&S GAGE)	
55 THROUGH 84	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (NO. 18 B&S GAGE)	
OVER 84	0.052 INCH (18 GAGE, GALV.)	0.051 INCH (NO. 16 B&S GAGE)	
ROUND DUCTS			
MAXIMUM SIZE (INCHES)	SPIRAL SEAM DUCT	LONGITUDINAL SEAM DUCT	FITTINGS
	STEEL (MINIMUM THICKNESS, NOMINAL)	STEEL (MINIMUM THICKNESS, NOMINAL)	STEEL (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.019 INCH (26 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)
13 THROUGH 18	0.022 INCH (26 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)
19 THROUGH 28	0.028 INCH (24 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)
29 THROUGH 36	0.034 INCH (22 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)
37 THROUGH 52	0.040 INCH (20 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)

MUSHROOM TYPE EXHAUST FAN

N.T.S.

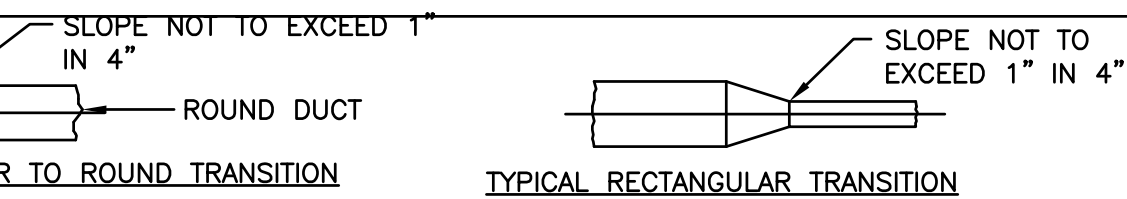
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CEILING DIFFUSER DETAIL

N.T.S.

5



- INSTALLATION NOTES
- ALL DUCTS SHALL BE CONSTRUCTED AND ERECTED IN A NEAT AND WORKMANLIKE MANNER.
 - DUCT SHALL BE CONSTRUCTED OF THE WEIGHTS, GAGES AND MATERIAL SHOWN IN THE SCHEDULE ON THESE DRAWINGS.
 - THE DIMENSIONS SHOWN FOR ALL DUCTS SHOWN IN PLAN GIVE THE WIDTH FIRST AND THEN THE HEIGHT.
 - DUCT RISERS SHOULD BE SUPPORTED BY ANGLES AT EVERY FLOOR.
 - AIR TURN SHALL BE INSTALLED IN ALL ABRUPT ELBOWS TO PREVENT TURBULENCE.
 - DUCTS SHALL BE SECURELY ATTACHED TO THE BUILDING CONSTRUCTION IN AN APPROVED MANNER.
 - DIVERGING TRANSITION PIECES SHALL BE MADE AS GRADUAL AS POSSIBLE.
 - INSTALL FIRE DAMPERS IN ACCORDANCE WITH UL 555.
 - ACCESS PANELS SHOULD BE PLACED BEFORE AND/OR AFTER EQUIPMENT INSTALLED IN THE DUCT.
 - DUCT AREA SHOULD NOT BE DECREASED MORE THAN 10% WHEN OBSTRUCTIONS CANNOT BE AVOIDED, AND THEN A STREAMLINED FITTING SHOULD BE USED.
 - FLEXIBLE FABRIC CONNECTIONS (OR EQUAL) SHOULD BE USED ON BOTH INLETS AND OUTLETS OF ALL FANS AND AIR HANDLING UNITS.
 - JOINTS AND SEAMS OF SUPPLY DUCTS SHALL BE FASTENED SECURELY AND MADE AIR TIGHT.

ABOSSEIN #223054

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NOT USED

N.T.S.

10

SHEET METAL GAGES

N.T.S.

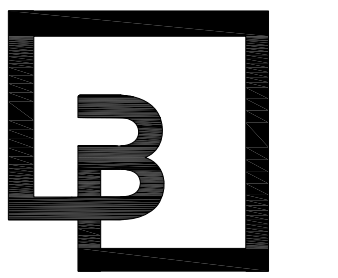
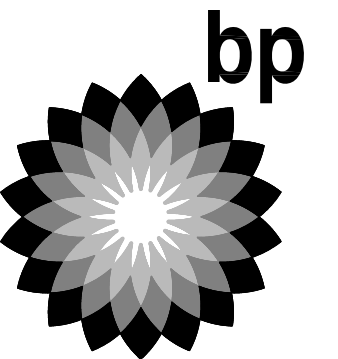
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DUCT CONSTRUCTION DETAILS

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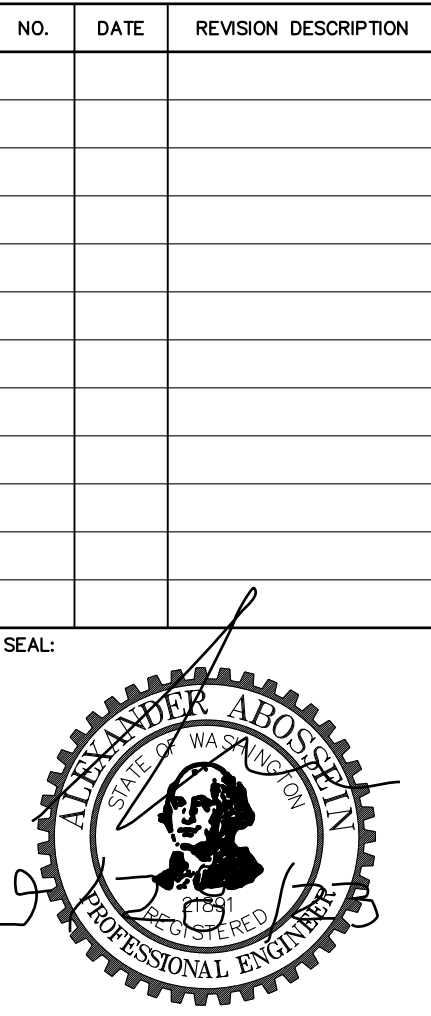
8

CLIENT:



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: ALLIANCE ZADN:
CHECKED BY: BP REP:
DRAWN BY: ALLIANCE PM:
VERSION: PROJECT NO:
21730

DRAWING TITLE:

MECHANICAL
DETAILS

SHEET NO:

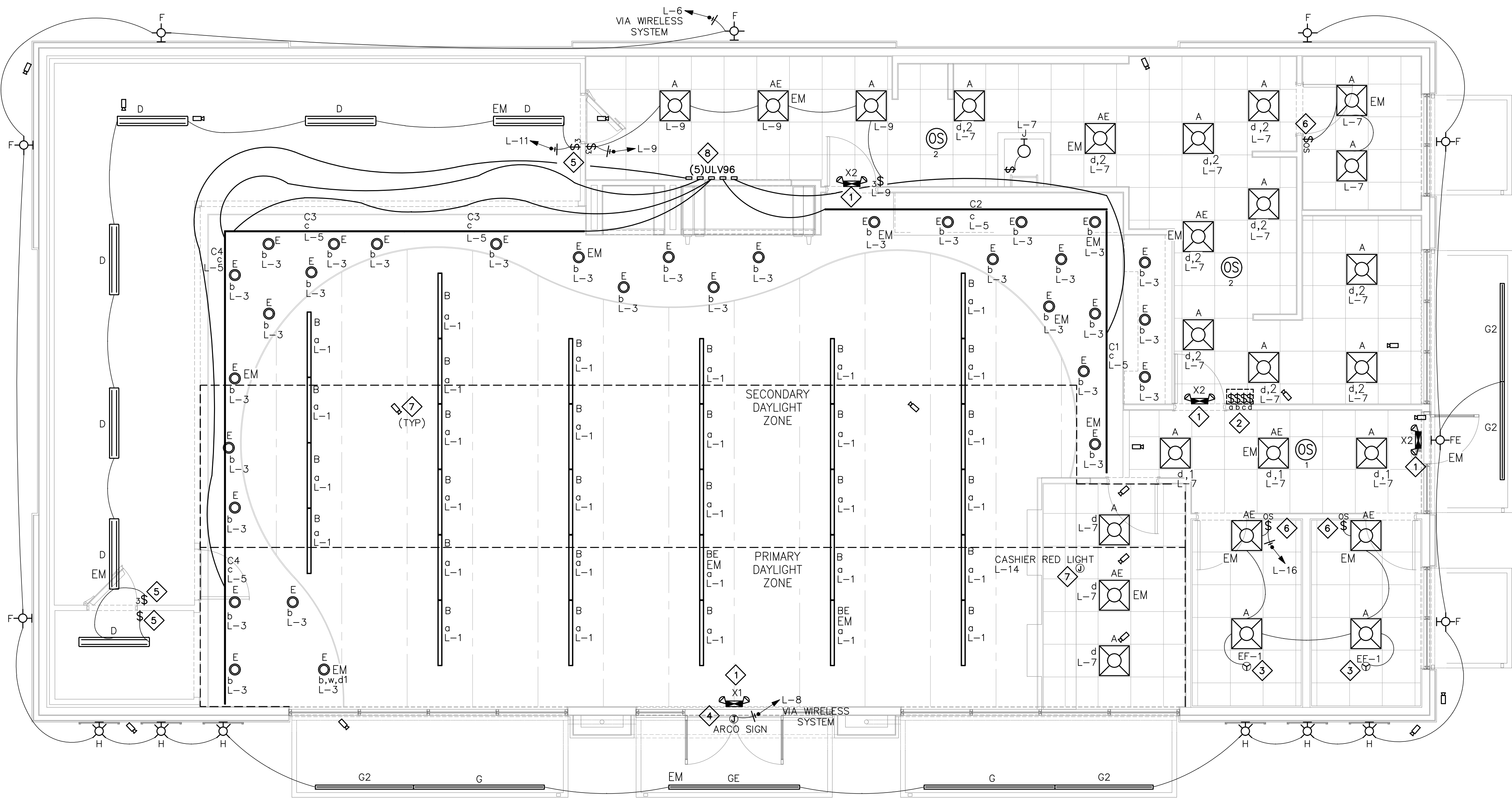
M2.0

SHEET NOTES

- 1
- ALL EMERGENCY AND EXIT LIGHTING FIXTURES TO BE CONNECTED TO LOCAL LIGHTING CIRCUIT, AHEAD OF ANY AND ALL SWITCHING.
- 2
- PROVIDE LOCKING LIGHT SWITCHES. FIELD VERIFY SWITCH BANK LOCATION WITH STORE MANAGER.
- 3
- USE LOCAL LIGHTING CIRCUIT FOR EXHAUST FAN. FAN TO RUN WHILE LIGHTS ARE IN USE.
- 4
- JUNCTION BOX PLACED FOR STORE SIGN. COORDINATE EXACT LOCATION WITH SIGN PROVIDER AND OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.
- 5
- INSTALL TIMER SWITCH FOR FREEZER/COOLER LIGHTS PER MANUFACTURERS REQUIREMENTS. FIELD VERIFY EXACT LOCATIONS.
- 6
- PROVIDE DUAL TECHNOLOGY MULTI-WAY WALL SWITCH SENSOR. WATTSTOPPER DW-103 OR EQUAL.
- 7
- SECURITY CAMERA AND MONITOR WIRING SHALL BE PROVIDED BY OWNER'S SECURITY CONTRACTOR. PROVIDE 1/2" CONDUITS TO HEADEND RECORDER WITH PULL WIRE IF REQUIRED BY LOCAL CODE. SECURITY EQUIPMENT LOCATION SHOWN FOR REFERENCE ONLY. FINAL LOCATION TO BE DETERMINED BY SECURITY CONTRACTOR. COORDINATE LOCATION OF CAMERAS AND MONITORS WITH SECURITY CONTRACTOR.
- 8
- KELVIX GRAPHIC SIGN LIGHTING TRANSFORMERS FOR FIXTURE "C".

GENERAL NOTES

1.
- SEE MECHANICAL EXHAUST FAN SCHEDULE ON SHEET M0.1.
2.
- ALL OCCUPANCY AND TIMER SWITCHES TO BE PROGRAMMED TO SHUT-OFF CONTROLLED FIXTURES WITHIN 15-MINUTES OF VACANCY.
3.
- 'EM' AT LIGHT FIXTURE INDICATES LIGHT FIXTURE WITH EMERGENCY BACK UP. ALL EMERGENCY LIGHT FIXTURES SHALL BE SERVED FROM BATTERY BACKUP. EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED AND CIRCUITED PER THE LATEST NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES (INSTALL A CENTRAL BATTERY SYSTEM WHERE THE USE OF INDIVIDUAL BATTERY UNITS ARE PROHIBITED BY LOCAL CODES). ALL EMERGENCY FIXTURES AND EXIT SIGNS SHALL BE CONNECTED TO UN-SWITCHED HOT LEG OF THE LOCAL LIGHTING CIRCUIT.
4.
- GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY IF CONFLICT OCCURS BETWEEN LIGHTING AND ANY OTHER TRADE. DO NOT PROCEED WITH INSTALLATION IN THAT AREA UNTIL CONFLICT HAS BEEN RESOLVED TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
5.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING INSTRUCTIONS FOR ALL LIGHT FIXTURES. ELECTRICAL CONTRACTOR'S BID SHALL INCLUDE THE INSTALLATION OF ALL LIGHT FIXTURES AND ASSOCIATED LAMPS INCLUDING ALL NECESSARY HARDWARE AND SUPPORT PER SEISMIC REQUIREMENTS.
6.
- ALL WIRES SHALL BE #12 AWG UNLESS NOTED OTHERWISE.
7.
- WHERE WIRE SIZES ARE NOTED ON DRAWINGS, THAT SIZE SHALL BE THROUGH THE ENTIRE RUN UNLESS NOTED OTHERWISE.
8.
- ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
9.
- REFER TO BUILDING GUIDANCE STANDARDS FOR MATERIAL SELECTION CRITERIA, FINISHED AND GENERAL WORK RULES.
10.
- ELECTRICAL DESIGN BASED ON THE REQUIREMENTS OF 2018 WASHINGTON STATE ENERGY CODE. THE FOLLOWING STRATEGIES WERE USED:
— COMPLETE DESIGN SHALL COMPLY WITH 2018 WASHINGTON STATE ENERGY CODE.
11.
- GENERAL CONTRACTOR TO PROVIDE PHOTOMETRIC SURVEY REPORT OF BUILDING INTERIOR AREAS TO CONFIRM THAT AT LEAST 50 FOOT-CANDLE LIGHT INTENSITY IS PROVIDED DURING HOURS OF OPERATION IN THE KITCHEN AND FOOD HANDLING AREAS. OTHER AREAS (INCLUDING WALK-IN REFRIGERATOR AND FREEZER UNITS) MAY OPERATE WITH A LIGHT INTENSITY OF AT LEAST 10 FOOT-CANDLES, EXCEPT DURING CLEANING ACTIVITIES WHEN AT LEAST 50 FOOT-CANDLE INTENSITY MUST BE PROVIDED.
12.
- ALL EMERGENCY LIGHTS SHALL BE PROVIDED WITH UN-SWITCHED CIRCUIT IN ADDITION TO THE SWITCH CIRCUIT SHOWN. SWITCHED AND UN-SWITCHED CIRCUIT SHALL BE SUPPLIED FROM THE SAME BREAKER.
13.
- EXPOSED CONDUIT TO LIGHT FIXTURES SHALL BE MINIMIZED BUT WHERE EXPOSED SHALL BE STRAIGHT RUNS JUNCTION TO JUNCTION, ORGANIZED AND CONSISTENT IN APPEARANCE.
14.
- ALL EXTERIOR LIGHT FIXTURES TO BE CONTROLLED THROUGH THE LSI AIRLINK BLUE COMPLETE. OUTDOOR LIGHTING WIRELESS MESH SYSTEM. AIRLINK BLUE SYSTEM INCLUDES DAYLIGHT AND MOTION SENSORS WITH DIMMING CONTROL CAPABLE OF AUTOMATICALLY SHUTTING OFF OUTDOOR LIGHTING WHEN DAYLIGHT IS AVAILABLE, EMPLOY AUTO FUNCTIONALITY WHEN AREA BECOMES OCCUPIED, AND CAPABLE OF PROVIDING CONTINUOUS DIMMING THROUGH A 50%-90% RANGE PER 2018 WSEC C405.2.4.1.1. AIRLINK BLUE SYSTEM TO INCLUDE ASTRONOMICAL CLOCK AND TIME KEEPER AIRLINK BLUE COMPONENT FOR SCHEDULING CONTROLS SET PER 2018 WSEC C405.2.6.4. ALL EXTERIOR LUMINAIRES TO INCLUDE FACTORY INTEGRATED BLUETOOTH RADIO/SENSOR CONTROLLERS. AIRLINK BLUE SYSTEM TO BE INITIALIZED VIA WEB APP AND FIELD COMMISSIONED VIA MOBILE APP TO THE OWNER'S REQUIREMENTS. ANY CHANGES OR UPDATES TO BE ACCOMPLISHED ON SITE VIA MOBILE APP.
15.
- ALL SHOWN WALL LIGHTS SWITCHED TO BE MOUNTED AT +44" A.F.F. UNLESS OTHERWISE STATED.
16.
- LIGHTING WITHIN SALES AREA EXEMPT FROM 2018 WSEC C405.2.4 DAYLIGHT RESPONSIVE CONTROLS REQUIREMENT DUE TO BEING A GROUP M OCCUPANCY.

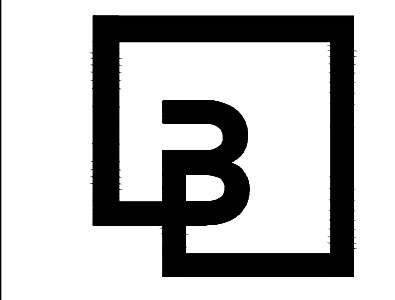
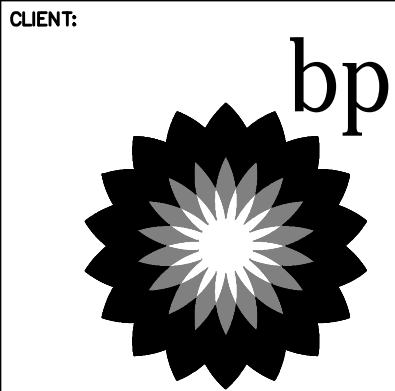


1 LIGHTING PLAN
1/4" = 1'-0"

ABOSSEIN #223054

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Engineering,
L.L.C.

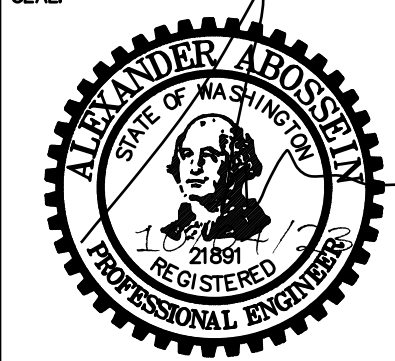
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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUDALLUP, WASHINGTON

FACILITY #7184

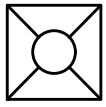
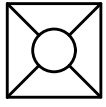
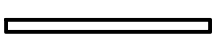
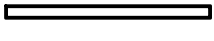
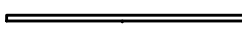
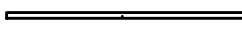
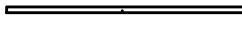
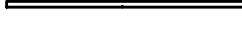
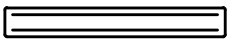










DESIGNED BY:	ALLIANCE ZADN:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

DRAWING TITLE:

LIGHTING
PLAN

SHEET NO:

E1.0

LUMINAIRE SCHEDULE										
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT WATTS	VOLTS	LOCATION	QUANTITY
A		(1) 30W LED	LED 2x2 RECESSED PANEL LIGHT	0-10V DIMMABLE	RECESSED	LSI SFP22 LED 30 UE DIM 40	30	120V 1P 2W	BACKROOM/UTILITY ELECTRICAL, OFFICE RESTROOMS, 4000K COLOR TEMP (NEUTRAL)	18
AE		(1) 30W LED	LED 2x2 RECESSED PANEL LIGHT WITH EMERGENCY BATTERY	0-10V DIMMABLE WITH EMERGENCY BATTERY	RECESSED	LSI SFP22 LED 30 UE DIM 40 EM	30	120V 1P 2W	BACKROOM/UTILITY ELECTRICAL, OFFICE RESTROOMS, W/EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION, 4000K COLOR TEMP (NEUTRAL)	7
B		(1) 22.8W LED	4' LED SUSPENDED LINEAR FIXTURE	0-10V DIMMABLE	SUSPENDED	LSI 3RSS-4-LED-06L-LF-UE-30-BLK	22.8	120V 1P 2W	SALES AREA	29
BE		(1) 22.8W LED	4' LED SUSPENDED LINEAR FIXTURE WITH EMERGENCY BATTERY	0-10V DIMMABLE WITH EMERGENCY BATTERY	SUSPENDED	LSI 3RSS-4-LED-06L-LF-UE-30-BLK-EM	22.8	120V 1P 2W	SALES AREA W/EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION	2
C1		(1) 96W LED	LED LINEAR GRAPHICS FIXTURE WITH POWER SUPPLY	ELECTRONIC	CEILING	KELVIX 502-I-163-DK-40K-WH-PV-SV-ULV (51.5W) WITH 96W-24V POWER SUPPLY ULV96	96	120V 1P 2W	SALES AREA, FIXTURE TO INCLUDE A PERMANENT FACTORY-INSTALLED ENERGY VERIFIED LABEL CERTIFIED BY UL OR COMPARIBLE.	1
C2		(1) 96W LED	LED LINEAR GRAPHICS FIXTURE WITH POWER SUPPLY	ELECTRONIC	CEILING	KELVIX 502-I-166-DK-40K-WH-PV-SV-ULV (51.5W) WITH 96W-24V POWER SUPPLY ULV96	96	120V 1P 2W	SALES AREA, FIXTURE TO INCLUDE A PERMANENT FACTORY-INSTALLED ENERGY VERIFIED LABEL CERTIFIED BY UL OR COMPARIBLE.	1
C3		(1) 96W LED	LED LINEAR GRAPHICS FIXTURE WITH POWER SUPPLY	ELECTRONIC	CEILING	KELVIX 502-I-132-DK-40K-WH-PV-SV-ULV (43.2W) WITH 96W-24V POWER SUPPLY ULV96 FOR (2) 132" RUNS	96	120V 1P 2W	SALES AREA, FIXTURE TO INCLUDE A PERMANENT FACTORY-INSTALLED ENERGY VERIFIED LABEL CERTIFIED BY UL OR COMPARIBLE.	2
C4		(1) 96W LED	LED LINEAR GRAPHICS FIXTURE WITH POWER SUPPLY	ELECTRONIC	CEILING	KELVIX 502-I-145-DK-40K-WH-PV-SV-ULV (48.9W) WITH 96W-24V POWER SUPPLY ULV96	96	120V 1P 2W	SALES AREA, FIXTURE TO INCLUDE A PERMANENT FACTORY-INSTALLED ENERGY VERIFIED LABEL CERTIFIED BY UL OR COMPARIBLE.	2
D		(1) 31.59W LED	REFRIGERATION LIGHT	0-10V DIMMABLE	CEILING	LSI EG3-4-LED-4L-DA-S-UNV-DIM-50-80	31.59	120V 1P 2W	WALK-IN COOLER, FREEZER W/ EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION, 4508 LUMENS, 143.42 LUMENS/WATT	7
E		(1) 14W LED	LED RECESSED DOWNLIGHT FIXTURE	0-10V DIMMABLE	RECESSED	LSI LAD6-LED-14L-UNV-DIM1-40-WF-TR6R-HAZ	14	120V 1P 2W	SALES AREA, CASHIER, W/EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION	32
F		(1) 47W LED	WALL MOUNTED LED LIGHT	0-10V DIMMABLE	WALL	LSI XWM-3-LED-06L-50	47	120V 1P 2W	EXTERIOR SIDE & REAR WALLS	7
FE		(1) 59W LED	WALL MOUNTED LED LIGHT WITH EMERGENCY BATTERY BACKUP	0-10V DIMMABLE WITH EM BACKUP	WALL	LSI XWM-3-LED-06L-50-UE-MSV-IMSBT1-BB	59	120V 1P 2W	EXTERIOR SIDE & REAR WALLS, INCLUDES INTEGRAL MOTION AND PHOTOCELL SENSOR AND BATTERY BACKUP CAPABLE OF 90 MINUTES OF EMERGENCY ILLUMINATION.	3
G		(1) 96W LED	AWNING FIXTURE LED	ELECTRONIC	AWNING	LSI 3RWM-8-LED-13L-LF-50	96	120V 1P 2W	FRONT ENTRANCE	2
G2		(1) 72W LED	AWNING FIXTURE LED	ELECTRONIC	AWNING	LSI 3RWM-6-LED-13L-LF-50	72	120V 1P 2W	FRONT ENTRANCE	4
GE		(1) 96W LED	AWNING FIXTURE LED WITH EMERGENCY BATTERY BACKUP	ELECTRONIC	AWNING	LSI 3RWM-8-LED-13L-LF-50-EM	96	120V 1P 2W	FRONT ENTRANCE, INCLUDES BATTERY BACKUP CAPABLE OF 90 MINUTES OF EMERGENCY ILLUMINATION.	1
H		(1) 23W LED	WALL MOUNTED LED GRAPHICS FIXTURE	ELECTRONIC	WALL	LSI XWM-2-LED-03L-50	23	120V 1P 2W	FRONT EXTERIOR	6
J		(1) 12W LED	WALL MOUNTED LED PERMANENT LIGHT FOR ROOF ACCESS	ELV DIMMING	WALL	WAC LIGHTING FM-05RN-930-FINISH BY OTHERS	12	120V 1P 2W	ROOF ACCESS HATCH	1
X1		(1) 1.1W LED	EXIT SIGN WITH BATTERY BACKUP	ELECTRONIC	UNIVERSAL	LSI LPRX-R-U-WH-LD11	1.1	120V 1P 2W	SALES AREA, W/EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION	1
X2		(1) 0.7W LED	EXIT SIGN W/ BATTERY BACKUP W/O SIGN	ELECTRONIC	UNIVERSAL	LSI EX-R-U-WB-WH-SD2	0.7	120V 1P 2W	BACKROOM, SIDE EXIT, W/EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION	3

NOTE: FOR KELVIX FIXTURES "C1", "C2", "C3", AND "C4", UTILIZE THE FOLLOWING CONTACT INFORMATION FOR ORDERING:

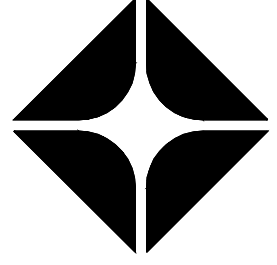
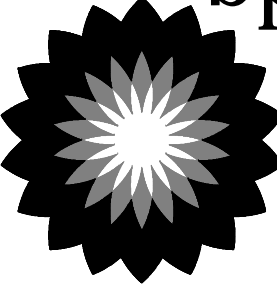
DJ DIAMOND-GONZALEZ
DDIAMOND-GONZALEZ@KELVIX.COM
800-789-3810 EXT 145
6285 LAKEVIEW BLVD
LAKE OSWEGO, OR 97035

ABOSSEIN #223054

Abossein
Engineering,
L.L.C.

MECHANICAL - ELECTRICAL
CIVIL - LEED
FIRE PROTECTION
18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
FAX: (425) 462-9451
E-Mail: cservice@abossein.com
www.abossein.com

CLIENT:













ARCO

BP WEST COAST PRODUCTS, LLC



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
			
			
			
			
			
			
			
			
			
			



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY: ALLIANCE ZADM;
CHECKED BY: BP REPA;
DRAWN BY: ALLIANCE PM;
VERSION: PROJECT NO: 21730

DRAWING TITLE:

LUMINAIRE
SCHEDULE

SHEET NO:

E1.1

SHEET NOTES

- 1

COORDINATE ALL STUB-UP LOCATIONS WITH REFRIGERATION CONTRACTOR AND REFRIGERATION EQUIPMENT INSTALLATION DRAWINGS.
- 2

STUB UP CONDUITS UNDER THE CHECK STAND AND TERMINATE IN SEPARATE 8"x8"x6" BOXES FOR POWER AND LOW VOLTAGE SYSTEMS, MOUNTED 4" ABOVE FINISHED FLOOR COIL 10' OF ALL POWER WIRING.
- 3

INSTALL (2) 1 1/2"C UNDER FLOOR CONDUITS FOR LOW VOLTAGE – ONE TO THE TELEPHONE BOARD AND ONE TO THE SECURITY PANEL INSIDE OFFICE.
- 4

RECEPTACLE FOR DVR LOCKING RACK ENCLOSURE MOUNTED AT +94" A.F.F. AT ENCLOSURE CENTER.
- 5

CARLTON FLOOR PVC FLOOR BOX OR STEEL FLOOR BOX, 4" DIAMETER WITH BRONZE ADJ. RING AND CONDUIT "STEEL CITY" CAT#88DA COVER 3P90 (TYP.). LOCATE 1'-0" IN FRONT OF GONDOLAS, TYP.
- 6

FOR SECURITY SYSTEM INSTALL CONDUIT WITH PULL BOX AS SHOWN. STANDARD OUTLET BOXES AND PULLBOX WIRING BY OTHER COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
- 7

SECURITY ALARM EQUIPMENT. COORDINATE FINAL LOCATION WITH SECURITY CONTRACTOR.
- 8

TELEPHONE BACKBOARD. INSTALL 2" CONDUIT BETWEEN TELEPHONE BOARD AND SECURITY PANEL.
- 9

COORDINATE THE SCOPE OF WORK, EQUIPMENT RATING, WIRING REQUIREMENT AND CONTROLS WITH REFRIGERATION EQUIPMENT CONTRACTOR/VENDOR PRIOR TO PROCEEDING WITH WORK. REFER TO KITCHEN/REFRIGERATION EQUIPMENT FOR ADDITIONAL INFORMATION. NOTIFY GENERAL CONTRACTOR IF ANY DISCREPANCY EXISTS BETWEEN EQUIPMENT RATING, WIRING REQUIREMENT ETC. AND THE CURRENT DESIGN.
- 10

SHOW WINDOW RECEPTACLE TO BE LOCATED WITHIN 18" ABOVE STORE WINDOW. FACE PLATES TO BE PAINTED TO MATCH ADJACENT WALLS.
- 11

CONNECT TO RESTROOM SWITCHED LIGHTING CIRCUIT, SEE E1.0, E5.0 AND MECHANICAL EQUIPMENT SCHEDULE FOR MORE INFORMATION.
- 12

PROVIDE J-BOX & ONE 4 PAIR CAT 5/6 TEL. FOR CONNECTION OF ATM MACHINE. COORDINATE EXACT LOCATION AND OTHER REQUIREMENTS WITH OWNER.
- 13

COORDINATE EXACT LOCATION AND REQUIREMENTS FOR ELECTRIC WATER HEATER WITH PLUMBING CONTRACTOR.
- 14

J-BOX FOR EVAPORATOR COILS. (PRE-FAB COOLER MANUFACTURER TO DETERMINE EXACT LOCATION.)
- 15

ELECTRICAL PROVISION FOR AIR CURTAIN CONNECTION. (EXACT LOCATION AND HEIGHT TO BE DETERMINED AT SITE)
- 16

HOT WATER CIRCULATION PUMP 120V 0.8A. FIELD COORDINATE EXACT LOCATION.
- 17

PROVIDE (2) 2" CONDUIT FROM ROOF FOR FUTURE SOLAR PANELS. ROUTE CONDUITS TO MAIN DISTRIBUTION SERVICE MSB.
- 18

PANEL G IS PROVIDED WITH CPI (CAROLINA PRODUCTS, INC.) UNITIZED PANEL SYSTEM. PROVIDE WIREWAYS AS NEEDED TO ENTER CPI PANEL WITH BRANCH CIRCUITING. REFER TO PANEL SCHEDULE ON SHEET E2.1.
- 19

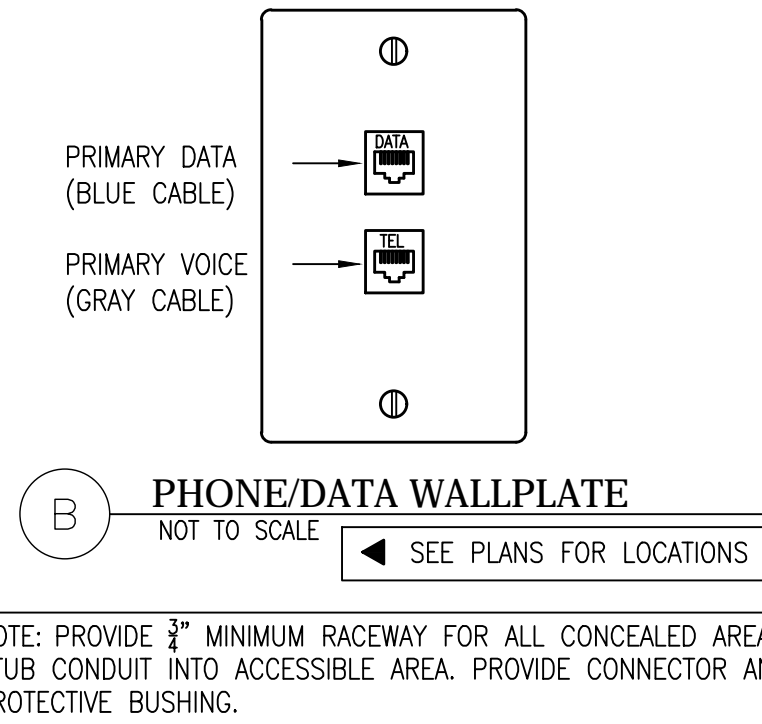
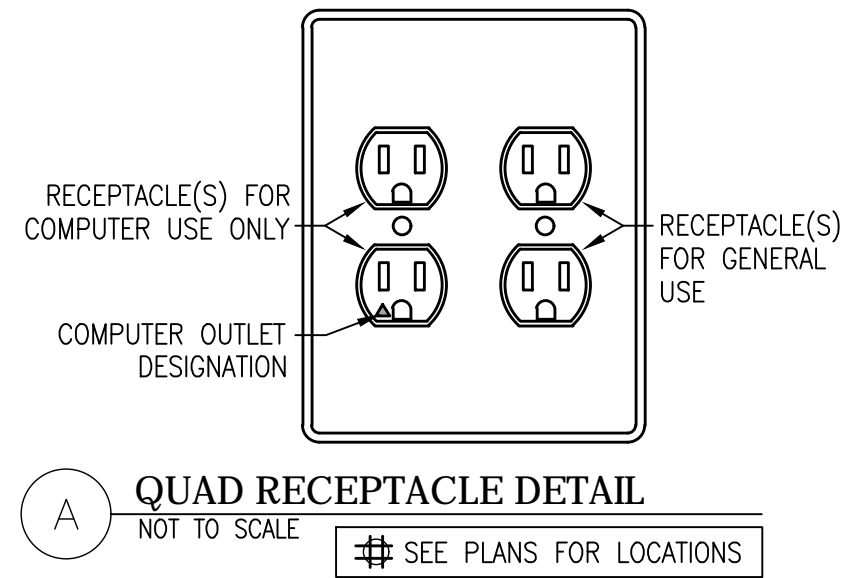
PROVIDE OCCUPANCY CONTROLLED RECEPTACLE FOR HALF OF ALL DUPLEX RECEPTACLES IN THE OFFICE.
- 20

CPI UTILIZED ALL-IN-ONE PANEL SYSTEM COMBINING PANELS A, B, C, G, L AND CPI UNITIZED MAIN SWITCHBOARD MDP-1.
- 21

































JBOX FOR HARD WIRED LOW VOLTAGE LAVATORY FAUCET SYSTEM WITH TRANSFORMER.

GENERAL NOTES





- A. PROVIDE GFCI PROTECTION FOR ALL 120V 1PH RECEPTACLES AND ALL 208V 3PH RECEPTACLES IN KITCHEN AREA AND FOOD SERVICE AREA PER NEC 210.8(B).
- B. ALL WIRES SHALL BE #12 AWG UNLESS NOTED OTHERWISE. PROVIDE SEPARATE NEUTRAL WIRE FOR ALL LIGHTING CIRCUITS BACK TO LIGHTING CONTROL PANEL.
- C. ALL 120V. RUNS LONGER THAN 100' SHALL BE #10 WIRE SIZE UNLESS NOTED OTHERWISE ON PLANS.
- D. WHERE WIRE SIZES ARE NOTED ON DRAWINGS, THAT SIZE SHALL BE THROUGH THE ENTIRE RUN UNLESS NOTED OTHERWISE.
- E. ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED FOR A FULLY COMPLETE AND OPERABLE SYSTEM.
- F. THE CONTRACTOR SHALL COORDINATE THE EXACT MOUNTING LOCATION OF ALL LIGHT FIXTURES, LIGHT SWITCHES, RECEPTACLES, TELEPHONE/DATA OUTLETS, AND ANY OTHER DEVICE LOCATIONS SHOWN ON THIS PLAN WITH THE ARCHITECTURAL FLOOR PLAN, ARCHITECTURAL REFLECTED CEILING PLAN, AND ARCHITECTURAL INTERIOR ELEVATIONS. DEVICES NOT LOCATED ON THE ARCHITECTURAL DRAWINGS SHALL BE COORDINATED WITH THE ARCHITECT IN THE FORM OF RFI (REQUEST FOR INFORMATION). CONTRACTOR SHALL ASSUME THAT DEVICES ARE TO BE MOUNTED CENTERED ON THE WALLS, SECTION OF WALLS, WINDOWS, ETC. AND THAT ADDITIONAL MOUNTING BRACKETS AND ACCESSORIES SHALL BE A PART OF THE BID PROPOSAL.
- G. REFER TO MECHANICAL CONTROLS DIAGRAM FOR ADDITIONAL SCOPE OF WORK, SUCH AS POWER FOR THERMOSTATS, AND OTHER WORK REQUIRED BY ELECTRICAL CONTRACTOR AND NOT SPECIFICALLY MENTIONED IN ELECTRICAL DRAWINGS.
- H. REFER TO ARCHITECTURAL DETAILS FOR INSTALLATION OF OUTLETS IN FIRE RATED WALLS.
- I. ALL PERMANENTLY CONNECTED (HARD-WIRED) APPLIANCES SHALL BE SERVED WITH DISCONNECTING MEAN WITHIN SIGHT OF THE UNIT, OR THE SERVING CIRCUIT BREAKER IN THE PANEL SHALL BE CAPABLE OF BEING LOCKED IN OPEN POSITION AS REQUIRED PER NEC 422.31.
- J. REFER TO EQUIPMENT SCHEDULE DRAWING SHEET E2.2 FOR POWER AND OUTLET REQUIREMENTS.
- K. FINAL EQUIPMENT LOCATION SHALL BE COORDINATED WITH ARCHITECT. REFER TO DWG. Q1.1 FOR FIXTURE LOCATION.
- L. ELECTRICAL CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR FOR BUILDING WALL FINISH ACCOMMODATIONS TO ENSURE EARLY INSTALLATION OF THE MAIN SWITCH BOARD, METER AND CT SECTIONS.










FOOD SERVICE EQUIPMENT SCHEDULE

CALLOUT	SYMBOL	VOLTS	AMPS	MCA	MOCP	KVA	HP	CIRCUIT	WIRE CALLOUT	LOAD TYPE	DISCONNECT
A1C – CAPPUCCINO MACHINE (6 HEAD)		120V 1P 2W	15	18.75	20	1.8		A–3	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
A14A – FROZEN BEVERAGE MACHINE 92 BARREL)		120V 1P 2W	12	15	20	1.44		A–1	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
A33 – COFFEE BEAN–TO–CUP GRINDER		208V 2P 2W	20	25	30	4.16		A–10,12	1/2”C,2#10,#10G	KITCHEN	SPECIAL RECEPTACLE
A33 – COFFEE BEAN–TO–CUP GRINDER		208V 2P 2W	20	25	30	4.16		A–6,8	1/2”C,2#10,#10G	KITCHEN	SPECIAL RECEPTACLE
A33 – COFFEE BEAN–TO–CUP GRINDER		208V 2P 2W	20	25	30	4.16		A–2,4	1/2”C,2#10,#10G	KITCHEN	SPECIAL RECEPTACLE
ARCO SIGN		120V 1P 2W	2.5	3.13	20	0.3		L–8	1/2”C,1#12,#12N,#12G	LIGHTING	JUNCTION BOX
B1B – FROZEN BEVERAGE DISPENSER (4 FLAVOR)		208V 2P 2W	30	37.5	40	6.24		A–21,23	1/2”C,2#8,#10G	KITCHEN	SPECIAL RECEPTACLE
B2A – FOUNTAIN TOP MOUNT ICE MAKER		208/120V 2P 3W	12.5	15.62	20	2.6		A–17,19	1/2”C,2#12,#12N,#12G	KITCHEN	SPECIAL RECEPTACLE
B2B FOUNTAIN ICE MAKER		208/120V 2P 3W	15	18.75	20	3.12		A–18,20	1/2”C,2#12,#12N,#12G	KITCHEN	SPECIAL RECEPTACLE
B12A ICE DRINK DISPENSER		120V 1P 2W	5.25	6.56	20	0.63		A–16	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
B12A ICE DRINK DISPENSER		120V 1P 2W	5.25	6.56	20	0.63		A–14	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
B14D – FCB GRAPHIC FOR 36” CART		120V 1P 2W	8.33	10.41	20	1		A–22	1/2”C,1#12,#12N,#12G	LIGHTING	DUPLEX RECEPTACLE
B15 – F”REAL BLENDER		120V 1P 2W	6.5	18.75	20	0.78		A–28	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
B15A – F”REAL FREEZER		120V 1P 2W	6.5	8.12	20	0.78		A–30	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
C18B – ICE CREAM CASE		120V 1P 2W	12	15	20	1.44		A–33	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
C18B – ICE CREAM CASE		120V 1P 2W	12	15	20	1.44		A–35	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
G6A ICE MACHINE		208V 2P 2W	18	18	20	3.74		B–8,10	1/2”C,2#12,#12G	KITCHEN	SPECIAL RECEPTACLE
G10A – WATER BOOSTER		120V 1P 2W	7.2	9	20	0.86	1/3 HP	B–4	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
G21 – 2–DOOR REACH–IN REFRIGERATOR		120V 1P 2W	7	8.75	20	0.84		B–7	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
G54 – CARBONATOR		120V 1P 2W	7.2	9	20	0.86	1/3 HP	B–2	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG1 – MICROWAVE OVEN		120V 1P 2W	15	19	20	1.8		A–13	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG3 – FOOD WARMER		208/120V 2P 3W	7.96	9.95	20	1.66		A–9,11	1/2”C,2#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG4B – REFRIGERATED SELF–SERVICE ISLAND		208V 2P 2W	23.73	29.66	30	4.94		A–24,26	1/2”C,2#10,#10G	KITCHEN	SPECIAL RECEPTACLE
TG5A – WORKTOP REFRIGERATOR		120V 1P 2W	7.2	9	20	0.86	1/3 HP	B–15	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG6 – BUN TOASTER		120V 1P 2W	13	16.25	20	1.56		B–13	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG7 – VENTLESS OVEN		208V 3P 3W	29.42	36.77	40	10.6		B–19,21,23	3/4”C,3#8,#10G	KITCHEN	SPECIAL RECEPTACLE
TG8A NACHO CHEESE DISPENSER		120V 1P 2W	1.67	2.08	20	0.2		A–5	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG8A NACHO CHEESE DISPENSER		120V 1P 2W	1.67	2.08	20	0.2		A–7	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG9 – FOOD LABEL PRINTER		120V 1P 2W	8.33	10.41	20	1		B–17	1/2”C,1#12,#12N,#12G	RECEPTACLE	DUPLEX RECEPTACLE
TG10B – MEDIUM REFRIGERATED CONDIMENT ISLAND		120V 1P 2W	8.33	10.41	20	1		A–27	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG35D – FREE STANDING BAKERY CASE		120V 1P 2W	8.33	10.41	20	1		A–25	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE
TG37 – ENERGY ZONE COOLER		120V 1P 2W	11.58	14.47	20	1.39		A–34	1/2”C,1#12,#12N,#12G	KITCHEN	DUPLEX RECEPTACLE

















































RECEPTACLE SCHEDULE

CALLOUT	SYMBOL	NEMA	VOLTS
C2 – CASH REGISTERS/POS		5–20R	120V 1P 2W
C3 – INTERCOM TO FUEL POSITIONS		5–20R	120V 1P 2W
C5 – SAFE		5–20R	120V 1P 2W
C6A – LOTTO TERMINAL		5–20R	120V 1P 2W
CASHIER RED LIGHT			120V 1P 2W
CONTROLLED RECEPTACLE		5–20R	120V 1P 2W
GFCI			120V 1P 2W
HEAT TAPE			120V 1P 2W
HWRCP–1		5–20R	120V 1P 2W
QUAD		5–20R	120V 1P 2W
RPBA HOT BOX			120V 1P 2W
STANDARD		5–20R	120V 1P 2W
WP GFCI		5–20R	120V 1P 2W

HVAC SCHEDULE

CALLOUT	SYMBOL	VOLTS	AMPS	MCA	MOCP	KVA	HP	CIRCUIT	WIRE CALLOUT	LOAD TYPE	DISCONNECT
ACN–1		120V 1P 2W	4.4	5.5	20	0.53	1/6 HP	C–38	1/2”C,1#12,#12N,#12G	MOTOR	FUSED
EF–1		120V 1P 2W	3.9	4.25	20	0.47	1/8 HP	L–16	1/2”C,1#10,#10N,#10G	MOTOR	HARDWIRED CONNECTION
EF–1		120V 1P 2W	3.9	4.25	20	0.47	1/8 HP	L–16	1/2”C,1#10,#10N,#10G	MOTOR	HARDWIRED CONNECTION
EF–2		120V 1P 2W	5.8	7.25	20	0.7	1/4 HP	C–12	1/2”C,1#10,#10N,#10G	MOTOR	TOGGLE SWITCH
ERV–1		120V 1P 2W	6	6	15	0.72		C–1	1/2”C,1#12,#12N,#12G	HEATING AND COOLING MOTOR	HARDWIRED CONNECTION
RTU–1		208V 3P 3W	50.4	63	70	18.16		C–19,21,23	1”C,3#4,#8G	HEATING AND COOLING MOTOR	FUSED
RTU–2		208V 3P 3W	68	85	100	24.5		C–25,27,29	1–1/4”C,3#2,#8G	HEATING AND COOLING MOTOR	FUSED

MISCELLANEOUS SCHEDULE

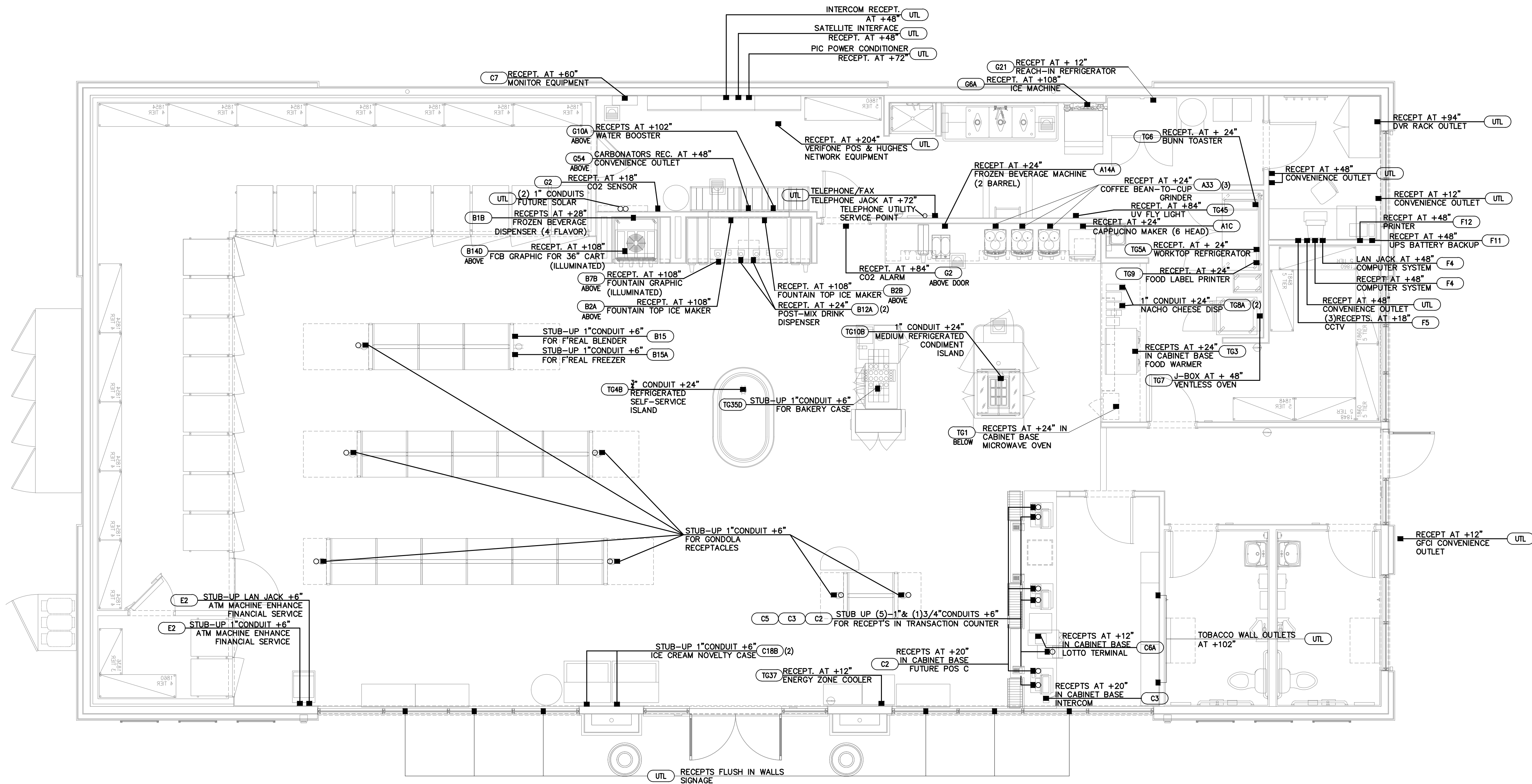
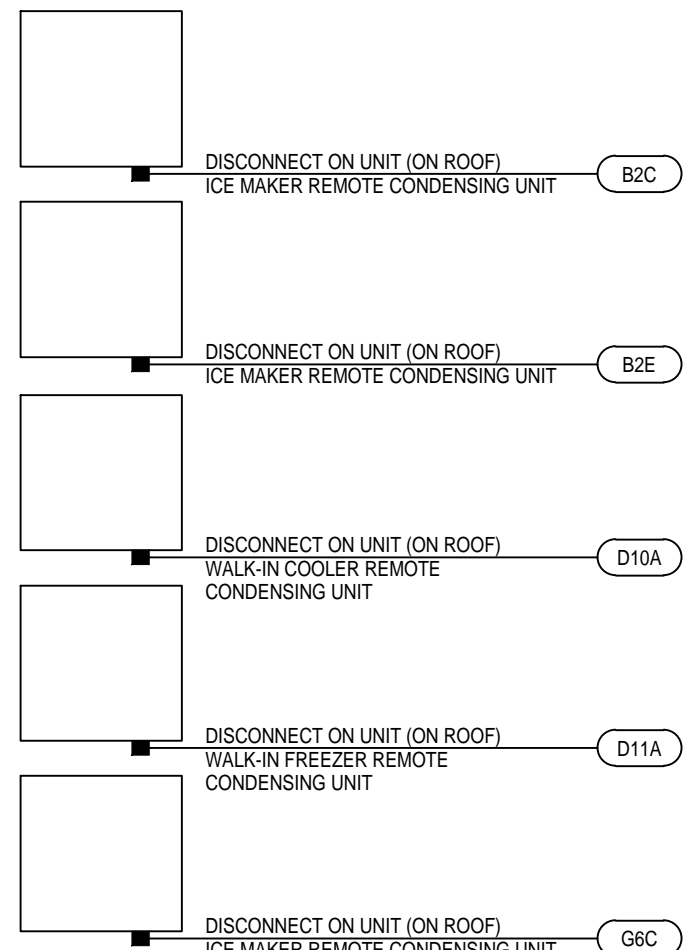
CALLOUT	SYMBOL	VOLTS	AMPS	MCA	MOCP	KVA	HP	CIRCUIT	WIRE CALLOUT	LOAD TYPE	DISCONNECT
AIR/WATER UNIT		120V 1P 2W	12.5	15.625	20	1.5		CW-3	3/4"C,1#8,#8N,#8G	NONCONTINUOUS	HARDWIRED CONNECTION
B2C - ICE MAKER REMOTE CONDENSING UNIT		120V 1P 2W	13	16.25	20	1.56		C-15	1/2"C,1#12,#12N,#12G	KITCHEN	NON-FUSED
B2E - ICE MAKER REMOTE CONDENSING UNIT		208V 2P 2W	7.5	9.37	25	1.56		C-14,16	1/2"C,2#12,#12G	KITCHEN	NON-FUSED
B7B - ILLUMINATED DISPLAY BOARD		120V 1P 2W	8.33	10.41	20	1		A-15	1/2"C,1#12,#12N,#12G	LIGHTING	DUPLEX RECEPTACLE
C7 - TANK MONITOR EQUIPMENT		120V 1P 2W	15	18.75	20	1.8		G-1	1/2"C,1#12,#12N,#12G	CONTINUOUS	DUPLEX RECEPTACLE
D3 - WALK-IN FREEZER GLASS DOOR ASSEMBLY DISPLAY		120V 1P 2W	7.17	8.96	20	0.86		L-18	1/2"C,1#10,#10N,#10G	LIGHTING	JUNCTION BOX
D10A - CU-1		208V 3P 3W	11.08	13.84	20	3.99	3 HP	C-18,20,22	1/2"C,3#12,#12G	KITCHEN	FUSED
D10A - CU-2		208V 3P 3W	11.08	13.84	20	3.99	3 HP	C-24,26,28	1/2"C,3#12,#12G	KITCHEN	FUSED
D10 EVAPORATOR COILS		120V 1P 2W	3.5	4.37	20	0.42	1/10 HP	C-2	1/2"C,1#12,#12N,#12G	KITCHEN	JUNCTION BOX
D10 EVAPORATOR COILS		120V 1P 2W	3.5	4.37	20	0.42	1/10 HP	C-2	1/2"C,1#12,#12N,#12G	KITCHEN	JUNCTION BOX
D10 EVAPORATOR COILS		120V 1P 2W	3.5	4.37	20	0.42	1/10 HP	C-4	1/2"C,1#10,#10N,#10G	KITCHEN	JUNCTION BOX
D10 EVAPORATOR COILS		120V 1P 2W	3.5	4.37	20	0.42	1/10 HP	C-4	1/2"C,1#10,#10N,#10G	KITCHEN	JUNCTION BOX
D11A - CU-3		208V 3P 3W	11.08	13.85	20	3.99	3 HP	C-30,32,34	1/2"C,3#10,#10G	KITCHEN	FUSED
D11 EVAPORATOR COILS		208V 2P 2W	2.02	2.52	20	0.42	1/10 HP	C-6,8	1/2"C,2#10,#10G	KITCHEN	JUNCTION BOX
DIESEL TURBINE #1		208V 3P 3W	7.49	9.37	20	2.7		G-14,16,18	1/2"C,3#10,#10G	MOTOR	HARDWIRED CONNECTION
DISPENSER #1		120V 1P 2W	12.5	15.62	20	1.5		G-3	1/2"C,1#12,#12N,#12G	NONCONTINUOUS	SPECIAL RECEPTACLE
DISPENSER #2		120V 1P 2W	12.5	15.62	20	1.5		G-9	1/2"C,1#12,#12N,#12G	NONCONTINUOUS	SPECIAL RECEPTACLE
DISPENSER #3		120V 1P 2W	12.5	15.62	20	1.5		G-15	1/2"C,1#12,#12N,#12G	NONCONTINUOUS	SPECIAL RECEPTACLE
DISPENSER #4		120V 1P 2W	12.5	15.62	20	1.5		G-21	1/2"C,1#10,#10N,#10G	NONCONTINUOUS	SPECIAL RECEPTACLE
DISPENSER #5		120V 1P 2W	12.5	15.62	20	1.5		G-27	1/2"C,1#12,#12N,#12G	NONCONTINUOUS	SPECIAL RECEPTACLE
DISPENSER #6		120V 1P 2W	12.5	15.62	20	1.5		G-33	1/2"C,1#10,#10N,#10G	NONCONTINUOUS	SPECIAL RECEPTACLE
COOLER DOOR LIGHTS		120V 1P 2W	2.08	2.6	20	0.25		L-10	1/2"C,1#12,#12N,#12G	LIGHTING	JUNCTION BOX
COOLER DOOR LIGHTS		120V 1P 2W	2.08	2.6	20	0.25		L-12	1/2"C,1#12,#12N,#12G	LIGHTING	JUNCTION BOX
COOLER DOOR LIGHTS		120V 1P 2W	2.08	2.6	20	0.25		L-13	1/2"C,1#10,#10N,#10G	LIGHTING	JUNCTION BOX
E2 ATM		120V 1P 2W	8.33	10.41	20	1		A-37	1/2"C,1#10,#10N,#10G	NONCONTINUOUS	JUNCTION BOX
ESO SWITCH		120V 1P 2W	6.25	7.81	20	0.75		G-22	3/4"C,1#8,#8N,#8G	NONCONTINUOUS	SPECIAL RECEPTACLE
ESO SWITCH		120V 1P 2W	6.25	7.81	20	0.75		G-22	3/4"C,1#8,#8N,#8G	NONCONTINUOUS	SPECIAL RECEPTACLE
F4 COMPUTER SYSTEM		120V 1P 2W	2.53	3.16	20	0.3		B-16	1/2"C,1#12,#12N,#12G	RECEPTACLE	QUAD RECEPTACLE
F5 CCTV-RECORDER/DVR/MONITOR		120V 1P 2W	7	8.75	20	0.84		B-14	1/2"C,1#12,#12N,#12G	RECEPTACLE	QUAD RECEPTACLE
F11 BATTERY BACKUP		120V 1P 2W	3	3.75	20	0.36		B-20	1/2"C,1#12,#12N,#12G	RECEPTACLE	DUPLEX RECEPTACLE
F12 PRINTER		120V 1P 2W	8.33	10.41	20	1		B-18	1/2"C,1#12,#12N,#12G	RECEPTACLE	DUPLEX RECEPTACLE
FUTURE VENT DIAGNOSTICS		120V 1P 2W	12.5	15.62	20	1.5		G-20	3/4"C,1#8,#8N,#8G	NONCONTINUOUS	JUNCTION BOX
G6C - ICE MAKER REMOTE CONDENSING UNIT		208V 2P 2W	12.5	15.62	25	2.6		C-11,13	1/2"C,2#12,#12G	KITCHEN	NON-FUSED
G8 - WH-1		208V 3P 3W	33.31	41.64	50	12		C-3,5,7	3/4"C,3#6,#10G	HEATING	NON-FUSED
HAND DRYER		120V 1P 2W	11.67	14.58	20	1.4		B-27	1/2"C,1#12,#12N,#12G	MOTOR	HARDWIRED CONNECTION
HAND DRYER		120V 1P 2W	11.67	14.58	20	1.4		B-25	1/2"C,1#12,#12N,#12G	MOTOR	HARDWIRED CONNECTION
ILLUMINATED LOGO SIGN		120V 1P 2W	4.17	5.21	20	0.5		L-24	1/2"C,1#10,#10N,#10G	LIGHTING	SPECIAL RECEPTACLE
ILLUMINATED LOGO SIGN		120V 1P 2W	4.17	5.21	20	0.5		L-28	1/2"C,1#10,#10N,#10G	LIGHTING	SPECIAL RECEPTACLE
ILLUMINATED LOGO SIGN		120V 1P 2W	4.17	5.21	20	0.5		L-26	1/2"C,1#10,#10N,#10G	LIGHTING	SPECIAL RECEPTACLE
LAVATORY FAUCET		120V 1P 2W	1.5	1.9	20	0.18		B-6	1/2"C,1#12,#12N,#12G	NONCONTINUOUS	JUNCTION BOX
LAVATORY FAUCET		120V 1P 2W	1.5	1.9	20	0.18		B-29	1/2"C,1#12,#12N,#12G	NONCONTINUOUS	JUNCTION BOX
LAVATORY FAUCET		120V 1P 2W	1.5	1.9	20	0.18		A-36	1/2"C,1#10,#10N,#10G	NONCONTINUOUS	JUNCTION BOX
LAVATORY FAUCET		120V 1P 2W	1.5	1.9	20	0.18		A-36	1/2"C,1#10,#10N,#10G	NONCONTINUOUS	JUNCTION BOX
MONUMENT SIGN		120V 1P 2W	2	2.5	20	0.24		L-23	3/4"C,1#8,#8N,#8G	LIGHTING	SPECIAL RECEPTACLE
MONUMENT SIGN		120V 1P 2W	2	2.5	20	0.24		L-21	1/2"C,1#10,#10N,#10G	LIGHTING	SPECIAL RECEPTACLE
TG45 - UV FLY LIGHT		120V 1P 2W	8.33	10.41	20	1		L-15	1/2"C,1#12,#12N,#12G	LIGHTING	DUPLEX RECEPTACLE
UNLEADED PREMIUM TURBINE #1		208V 3P 3W	7.49	9.37	20	2.7		G-8,10,12	1/2"C,3#10,#10G	MOTOR	HARDWIRED CONNECTION
UNLEADED TURBINE #1		208V 3P 3W	7.49	9.37	20	2.7		G-2,4,6	1/2"C,3#10,#10G	MOTOR	HARDWIRED CONNECTION

EQUIPMENT ELECTRICAL LEGEND

○	CONDUIT 'STUB-UP
■	ELECTRICAL ROUGH-IN LOCATION
+12"	HEIGHT OF ROUGH-IN ABOVE FINISHED FLOOR

GENERAL NOTES

- A. ALL DIMENSIONS FOR UTILITIES LOCATED IN SLAB SHALL BE FROM OUTSIDE FACE OF FOUNDATION TO CENTER OF ROUGH-IN. ALL OTHER DIMENSIONS ARE FROM FACE OF STUD WALL TO CENTER OF ROUGH-INS.
- B. ALL SERVICES SHOWN WITH SYMBOLS ON FACE OF STUD WALL SHALL HAVE CONDUIT BROUGHT TO THAT POINT CONCEALED IN WALL AND STUBBED OUT IN WALL, CENTERED AT HEIGHT SHOWN. DO NOT STUB OUT OF FLOOR AND RUN EXPOSED UP FACE OF WALL UNLESS OTHERWISE NOTED.
- C. REFER TO SHEET NO. E0.1 FOR LEGEND.



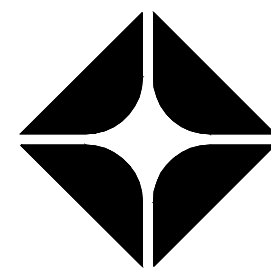
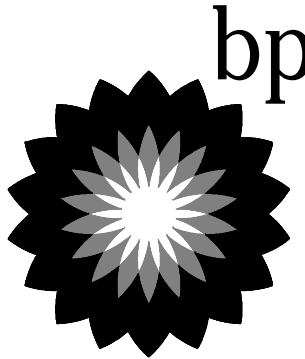
1 ELECTRICAL ROUGH-IN PLAN
1/4" = 1'-0"

ABOSSEIN #223054

Abossein
Engineering,
L.L.C.

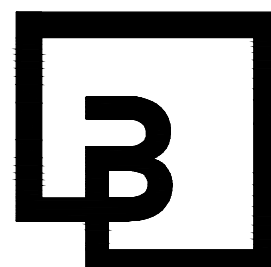
MECHANICAL - ELECTRICAL
CIVIL - LEED
FIRE PROTECTION
18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
FAX: (425) 462-9451
E-Mail: cservice@abossein.com
www.abossein.com

CLIENT:



ARCO

BP WEST COAST PRODUCTS, LLC



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUNALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADM:
CHECKED BY:	BP REP:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

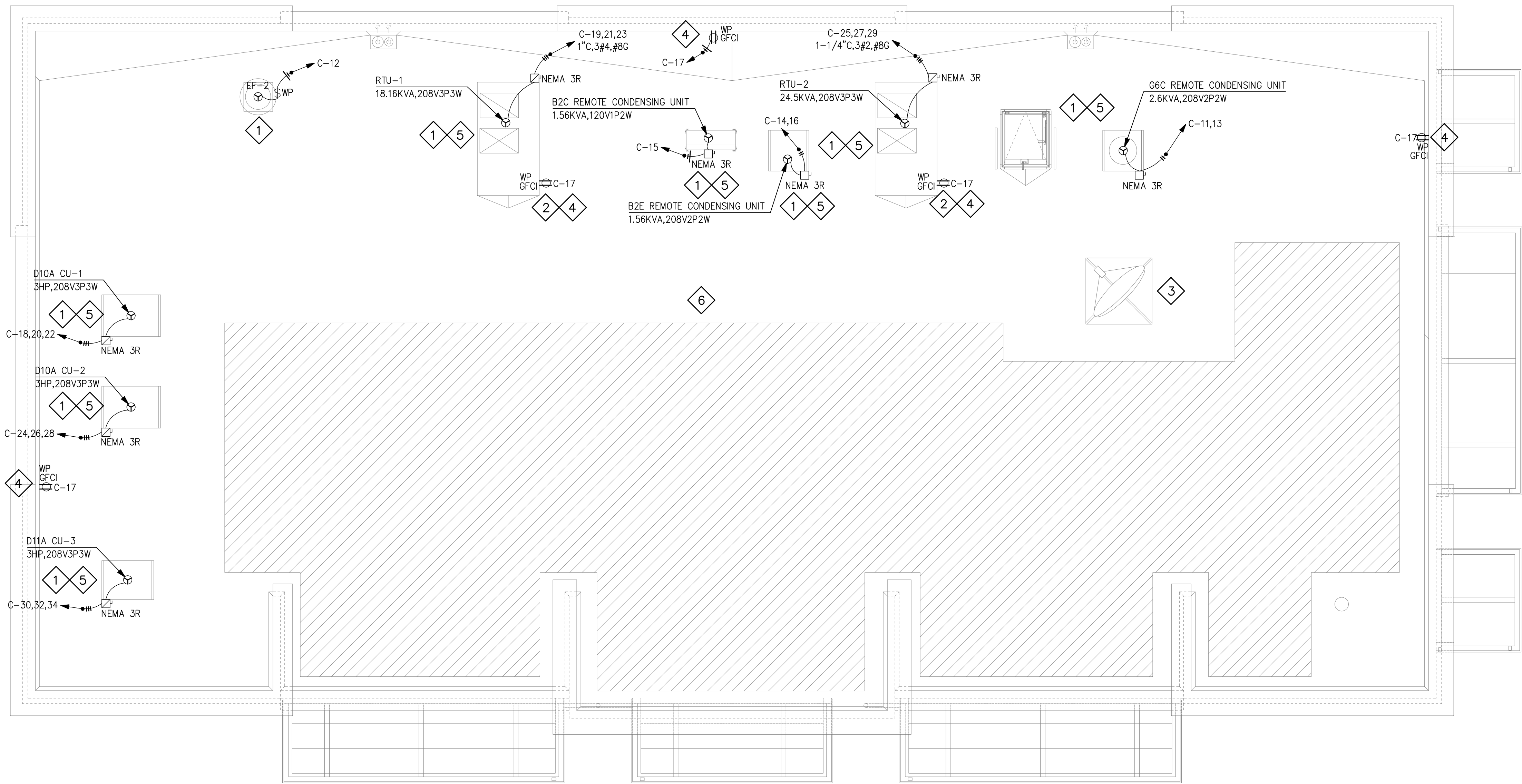
ELECTRICAL
ROUGH-IN PLAN

SHEET NO:

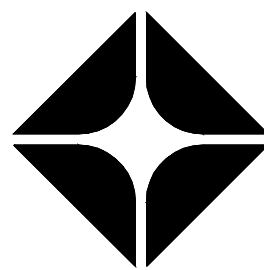
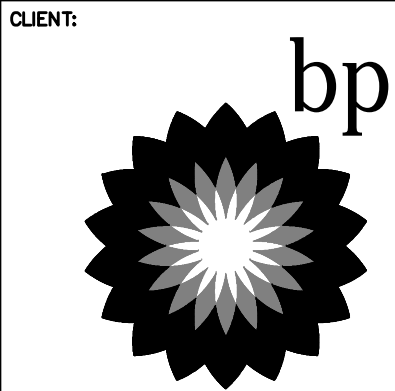
E1.4

SHEET NOTES:

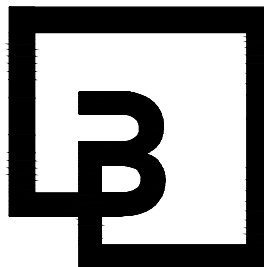
- 1 REFER TO DRAWING NOS. E1.3 & M0.1 FOR ELECTRICAL AND MECHANICAL EQUIPMENT SCHEDULE FOR EQUIPMENT RATING REFERENCES.
- 2 PROVIDE DEDICATED RECEPTACLE OUTLET WITH IN-USE COVER AT THE RTU UNITS ONLY. LOCATION TO BE DETERMINED AT SITE.
- 3 REFER TO DWG. E3.0 FOR SATELLITE ROOF JACK-SIGNAL CABLE CONDUIT DETAIL.
- 4 PROVIDE DEDICATED RECEPTACLE FOR GENERAL ROOF MAINTENANCE. MAINTAIN 25 FOOT RADIUS FOR EXACT LOCATION.
- 5 ALL CONDUIT TO BE ROUTED BELOW ROOF LINE AND STUBBED DIRECTLY INTO EQUIPMENT.
- 6 PROPOSED ALLOCATED SOLAR ZONE PER 2018 WSEC C411 SOLAR READINESS REQUIREMENTS. PER C411.2 CALCULATIONS:
3,543 SQ FT GROSS ROOF AREA - 127 SQ FT OCCUPIED SPACES
SOLAR ZONE IS 40% OF ROOF AREA: $0.4 \times 3,543 \text{ SQ FT} = 1,417 \text{ SQ FT}$



1 ELECTRICAL ROOF PLAN
1/4" = 1'-0"



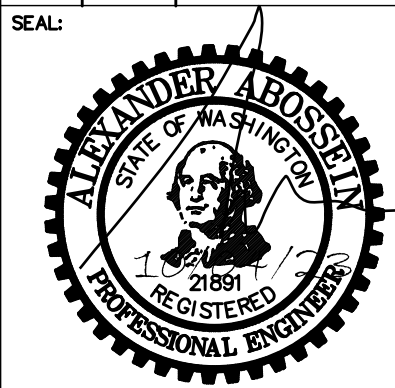
ARCO
BP WEST COAST PRODUCTS, LLC



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADN:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

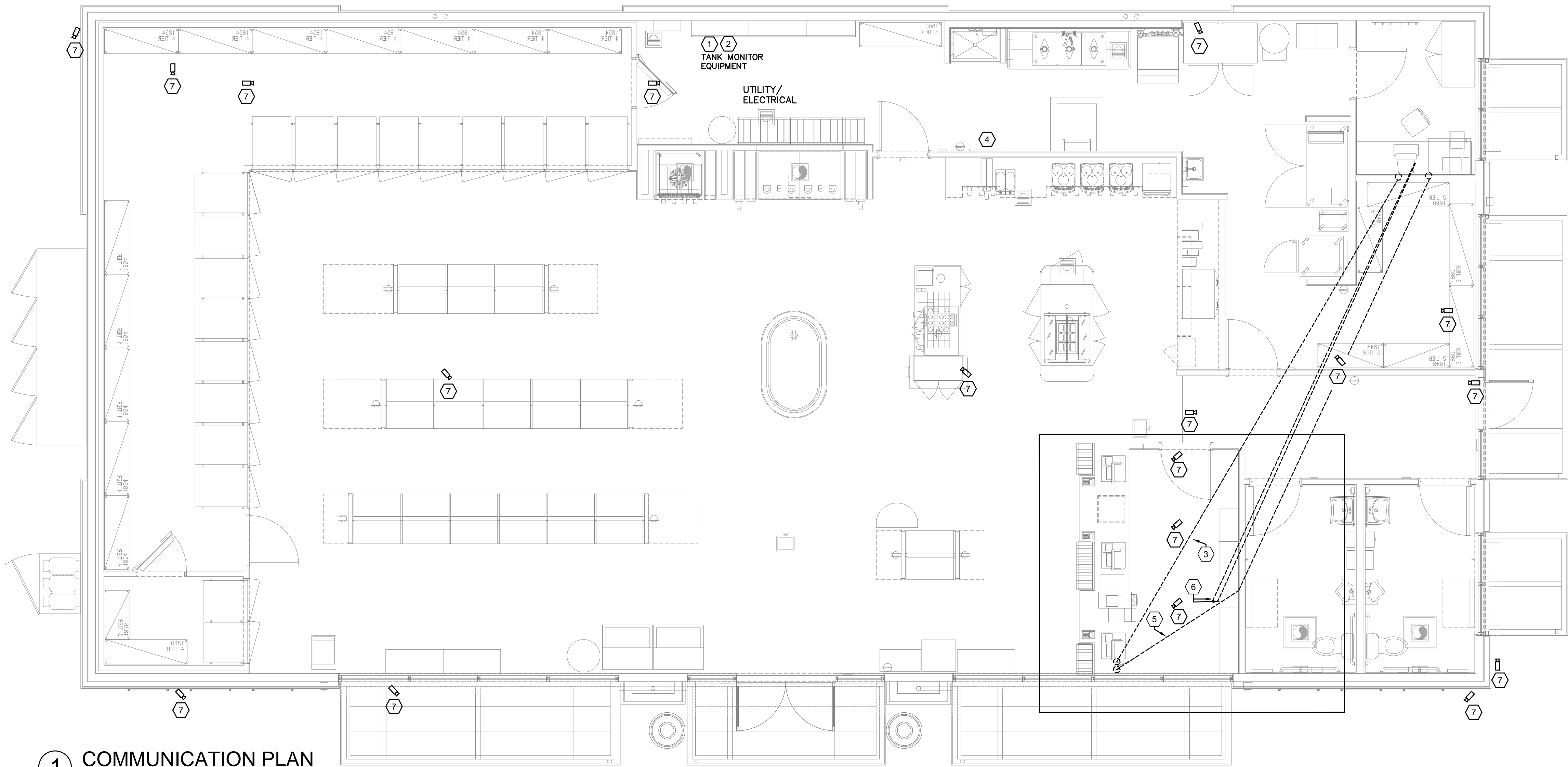
ELECTRICAL
ROOF PLAN

SHEET NO:

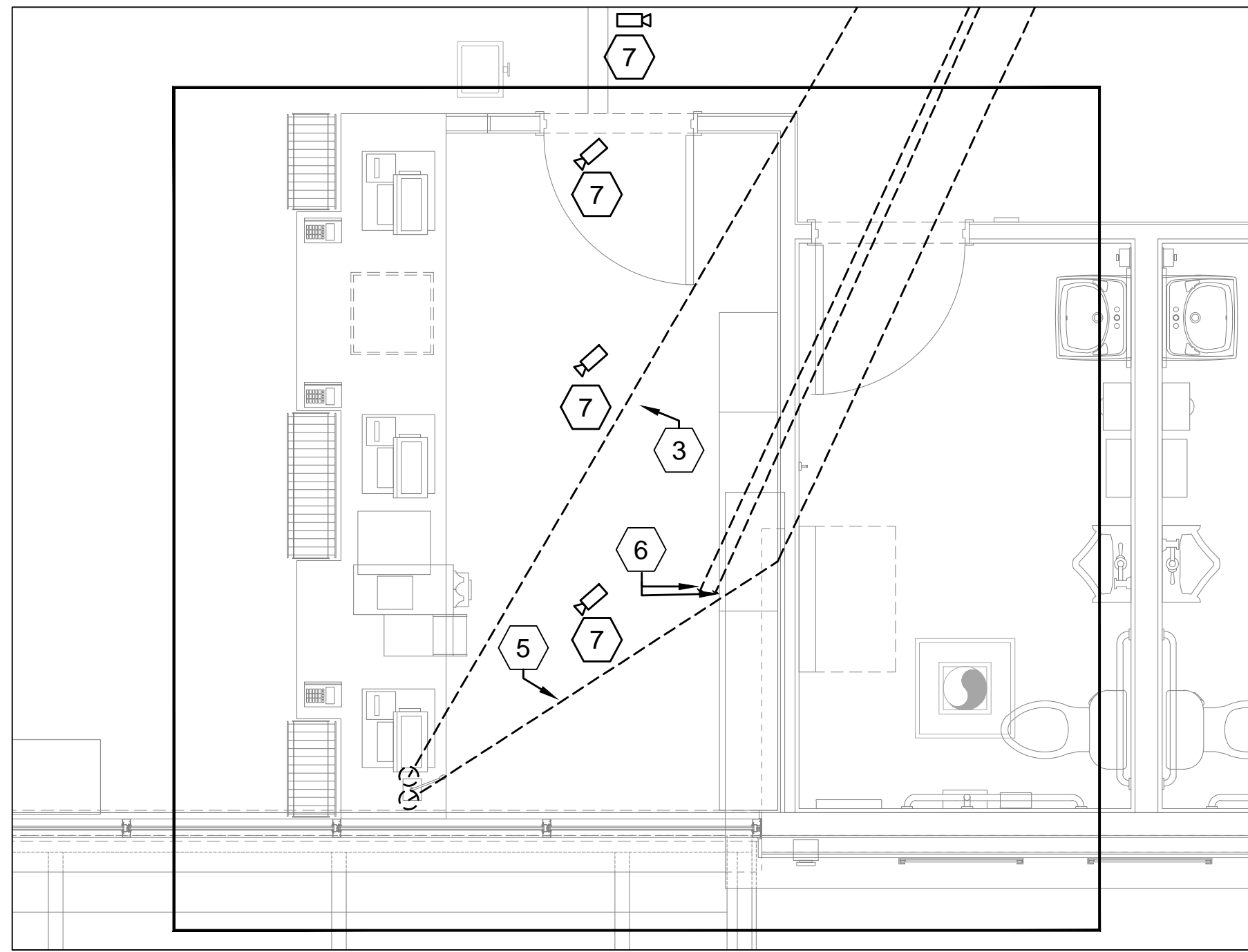
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ABOSSEIN #223054

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1 COMMUNICATION PLAN
3/16" = 1'-0"



2 ENLARGED CASHIER COMMUNICATION / POS PLAN
3/8" = 1'-0"

SAFETY & SECURITY / VIDEO SURVEILLANCE SYSTEM (PROVIDED BY GENERAL CONTRACTOR)	
REQUIRED EQUIPMENT	<ul style="list-style-type: none">20" COLOR PUBLIC VIEW MONITOR SHOULD BE CEILING MOUNTED AT THE ENTRANCE OF STORE. AS THE CUSTOMER ENTERS THE FACILITY, THE IMAGE SHOULD BE READILY SEEN.A MINIMUM OF 15" COLOR MONITOR SHOULD BE PLACED IN THE BACK OFFICE FOR VIEWING AND MONITORING.WHERE BACK OFFICE SPACE IS LIMITED, A SMALLER COLOR MONITOR MAY BE APPROPRIATE.ROBOT / SENSORMATIC COLOR (16 PORT) MULTIPLEXER.APPROVED TIME LAPSE VIDEO RECORDER (BEST RESULTS ARE OBTAINED IN 24-HOUR RECORDING MODE).24-HOUR REAL TIME AUDIO RECORDING (RECORDED ON 24-HOUR VIDEO TAPE).APPROVED SECURE CABINET FOR RECORDING EQUIPMENT.A MINIMUM OF FIVE-COLOR VIDEO CAMERAS WITH PROPER LENSES MOUNTED IN-STORE.A MINIMUM OF TWO EXTERIOR MOUNTED CAMERAS WITH ENVIRONMENTAL HOUSINGS TO COVER OPERATIONS AT THE FUELING ISLANDS.FACILITIES WITH CASH ACCEPTING PIC UNITS MUST HAVE CAMERA COVERAGE FOR EACH OPERABLE SIDE OF THE UNIT. IF A SINGLE CAMERA CANNOT VIEW BOTH SIDES OF A DUAL UNIT, THEN ADDITIONAL CAMERAS MUST BE INSTALLED TO COMPLETE COVERAGE.
OPTIONAL VIDEO EQUIPMENT	<ul style="list-style-type: none">ADDITIONAL VIDEO CAMERAS (INTERIOR AND EXTERIOR).13" COLOR MONITOR SHOULD BE CEILING MOUNTED NEAR CASH REGISTER AREA. MONITOR MUST SEQUENCE THE EXTERIOR CAMERA IMAGES AND MUST BE READILY VIEWED BY CASHIER.INTERACTIVE AUDIO / VIDEO MONITORING SERVICE PROVIDED BY APPROVED VENDOR FOR 24-HOUR INTERACTIVE OFF-FACILITY SECURITY MONITORING SYSTEM.
OPTIONAL DIGITAL RECORDER REQUIREMENTS	<ul style="list-style-type: none">DIGITAL CCTV RECORDING SYSTEM: SUFFICIENT HARD DRIVE SPACE TO SUPPORT 12 COLOR CAMERAS AT 5 1/2 FRAMES PER SECOND, PER CAMERA, FOR 31 DAYS.AUDIO RECORDING IS REQUIRED AT THE SALES COUNTER AREA.AN AUDIO PROCESSING KIT (LOUORE PREFERRED) IS REQUIRED TO SYNCHRONIZE THE AUDIO WITH THE VIDEO IMAGE.

DATA, COMMUNICATION CABLING AND DEVICE REQUIREMENTS

- A. DATA CABLING SHALL BE CATEGORY 5E OR CATEGORY 5 (CAT 5 UTP SHIELDED CABLE). CATEGORY 5 TO BE USED IF CATEGORY 5E IS COST PROHIBITIVE. PROVIDE LINE ITEM COST ON BID.
- B. CAT 6E AND 6 CABLE SHALL BE 4-PAIR, 8-CONDUCTORS, EACH PAIR SHALL BE INDIVIDUALLY FOIL-SHIELDED, FOIL-OUT, INSULATION COLORS SHALL BE BLUE, ORANGE, GREEN, BROWN AND WHITE IN ACCORDANCE WITH IEC 708. CABLE TO BE RATED FOR 300 MHz TRANSMISSION.
- C. CABLE JACKET COLOR TO BE BLACK IN ACCORDANCE WITH RAL COLOR REGISTER NO. 840-HR.
- D. ALL CABLING SHALL BE ROUTED IN CONDUIT. CONDUIT SHALL BE LIMITED TO 40% FILL.
- E. ALL MODULAR CONNECTORS AND TERMINATIONS SHALL BE RJ-45.
- F. PATCH PANELS SHALL BE 24-PORT, CAPABLE OF EXPANSION, AMP T568A OR EQUAL, FOR DATA AND TELEPHONE COMMUNICATIONS.
- G. PROVIDE ANALOG TELEPHONE JACKS AS SHOWN ON PLAN AS FOLLOWS: PAY PHONES, FORE COURT CONTROLLER, E-POS BACK-UP, TANK GAUGE AND DATA CARD POS.

KEYED NOTES:

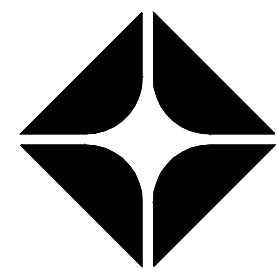
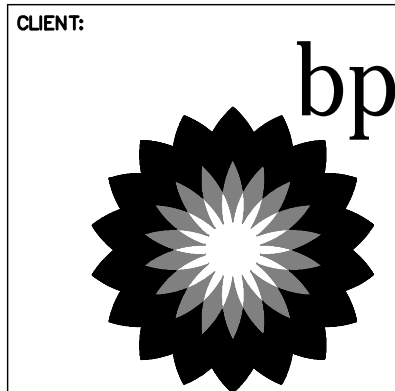
- 1 1" CONDUIT W/PULLWIRE FROM TLS-350 TANK MONITOR PANEL TO MANAGER'S COMPUTER LOCATION.
- 2 1" CONDUIT W/ CABLE FOR INTERCOM COMMUNICATION ABOVE CEILING TO THE (3) INTERCOM LOCATIONS. FROM (1) OFFICE, TO (1) COOLER AND (1) STORAGE ROOM. REFER TO SHEET E2.0 FOR POWER INFORMATION.
- 3 1-1/4" CONDUIT W/PULLWIRE FROM MANAGERS COMPUTER TO 12" X 12" SLAB OPENING FOR POS DATA CABLING.
- 4 TELEPHONE BOARD, PROVIDE 3/4" PLYWOOD MOUNTED TO WALL FOR TELEPHONE/SDN EQUIPMENT MOUNTING. COORDINATE WITH UTILITY COMPANY. MOUNT BOARD 7'-0" A.F.F. PAINT WITH FIRE RETARDANT PAINT AND PROVIDE GROUND FROM TELEPHONE BOARD TO MAIN SERVICE GROUND PER NEC ARTICLE 250.
- 5 2-1/4" CONDUIT WITH PULL WIRE FROM DISPENSER INTERFACE TO 12"X12" SLAB OPENING.
- 6 4" CONDUIT W/PULLWIRE MOUNTED 8" A.F.F. IN MANAGER'S OFFICE. ROUTE CONDUIT OVERHEAD AT STUB OUT OVER CASHIER COUNTER.
- 7 MINIMUM CAMERA SHOWN, EXACT LOCATION TO BE DETERMINED BY SECURITY CONSULTANT INSTALLER.

DRAWING LEGEND	
SYMBOL	DESCRIPTION
L ▶ DATA	DOUBLE GANG J-BOX WITH SINGLE GANG PLASTER RING SHALL BE PROVIDED BY AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE SIEMON CT4-FP-20 FACE PLATE W/ 2 SIEMON CT-AK-20 INSERTS. SEE RJ-45 RECEPTACLE WIRING DIAGRAM DETAIL FOR PROPER WIRING ORDER. ELECTRICAL CONTRACTOR SHALL NUMBER EACH CONNECTION AS SHOWN TO COORDINATE WITH PATCH PANEL NUMBERS. PROVIDE WRITE-ON LABEL UNDER CLEAR PLASTIC COVER INDICATING PATCH PANEL IDENTIFIER. PROVIDE PRINTED INSERTS FOR ALL LABELS (HANDWRITTEN NOT ACCEPTABLE).
T ▶ VOICE	DOUBLE GANG TELEPHONE OUTLET WITH SINGLE GANG PLASTER RING SHALL BE PROVIDED BY AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE SIEMON CT4-FP-20 FACE PLATE W/ 2 SIEMON CT-AK-20 INSERTS. SEE RJ-45 RECEPTACLE WIRING DIAGRAM DETAIL FOR PROPER WIRING ORDER. ELECTRICAL CONTRACTOR SHALL NUMBER EACH CONNECTION AS SHOWN TO COORDINATE WITH PATCH PANEL NUMBERS. PROVIDE WRITE-ON LABEL UNDER CLEAR PLASTIC COVER INDICATING PATCH PANEL IDENTIFIER. PROVIDE PRINTED INSERTS FOR ALL LABELS (HANDWRITTEN NOT ACCEPTABLE).
-----	C-STORE TO HAVE (5) PHONE LINES. (1) LINE FOR EACH OF THE FOLLOWING: <ul style="list-style-type: none">- MAIN TELEPHONE- FAX- ATM- LOTTERY- SPARE
----	CONDUIT ROUTED UNDER SLAB.
----	CONDUIT ROUTED ABOVE CEILING.

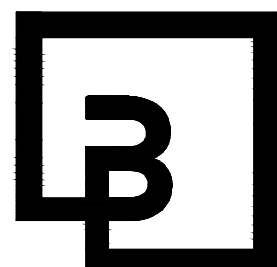
ABOSSEIN #223054

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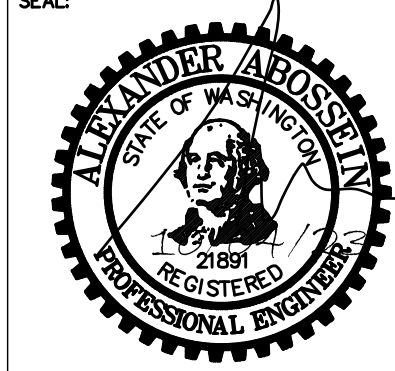
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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY: ALLIANCE ZADN:
CHECKED BY: BP REPA:
DRAWN BY: ALLIANCE PM:
VERSION: PROJECT NO:
21730

DRAWING TITLE:

COMMUNICATION
PLAN

SHEET NO:

E1.6

NOTES:

- ALL SERVICE EQUIPMENT, INCLUDING METER & CURRENT TRANSFORMER CABINET TERMINATION BOXES, DISCONNECT SWITCHES, AND MAIN CIRCUIT BREAKERS SHALL BE RATED FOR THE MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT AS DETERMINED BY THE SERVING UTILITY CO.
- DESIGNED AIC RATINGS BASED ON PROPOSED 300KVA UTILITY TRANSFORMER WITH 1.8% IMPEDANCE. ELECTRICAL CONTRACTOR TO CONFIRM ACTUAL AVAILABLE FAULT CURRENT WITH LOCAL UTILITY AND MAKE REVISIONS TO EQUIPMENT AIC RATINGS PRIOR TO ORDERING AND INSTALLATION. ELECTRICAL CONTRACTOR SHALL NOTIFY ENGINEER OF CHANGES.
- ALL SWITCHGEAR (MSB & MDP) CONDUCTORS SHALL BE STRANDED COPPER TYPE THHN/THWN.
- GROUNDING ELECTRODE CONNECTIONS SHALL BE MADE WITH A U.L. LISTED AND APPROVED BOLTED PRESSURE OR COMPRESSION TYPE CONNECTOR.
- GROUND RODS (IF NEEDED) SHALL BE 3/4" DIA. X 10' LONG COPPERWELD. RESISTANCE TO GROUND MUST BE 25 OHMS OR LESS.
- CONCRETE ENCASED (UFER) GROUNDING ELECTRODES SHALL CONSIST OF AT LEAST 20 FEET OF ONE OR MORE STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2 INCH DIAMETER, OR CONSISTING OF AT LEAST 20 FEET OF BARE COPPER CONDUCTORS NOT SMALLER THAN #2/0 AWG, ENCASED BY AT LEAST 2 INCHES OF CONCRETE, LOCATED WITHIN AND NEAR THE BOTTOM OF A CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH.
- CONNECT GROUNDING WIRE DIRECTLY TO GROUND ROD. MINIMIZE CONDUCTOR RIGHT ANGLE BENDS. MAXIMUM LENGTH OF CONDUCTOR SHALL BE 10 FEET.
- SUPPLY EXACT NUMBER OF DEDICATED ISOLATED GROUND RECEPTACLES FOR LINE CONDITIONED EQUIPMENT. NO UNUSED DEDICATED ISOLATED GROUND RECEPTACLE SHALL BE INSTALLED. IF A RECEPTACLE IS INSTALLED THEN NOT USED. CONTRACTOR SHALL REMOVE RECEPTACLE AND INSTALL BLANK COVER ON JUNCTION BOX.
- USE OF SERIES-CONNECTED INTERRUPTING RATINGS FOR CIRCUIT BREAKERS IS ACCEPTABLE PROVIDED THE CIRCUIT BREAKER COMBINATIONS ARE RECOGNIZED BY UNDERWRITERS LABORATORIES UNDER THE "CIRCUIT BREAKERS - SERIES CONNECTED" PRODUCT CATEGORY.
- CONTRACTOR SHALL PROVIDE ARC FLASH WARNING LABELS AS REQUIRED BY CEC 110.16.
- PROVIDE DEDICATED NEUTRAL WIRES FOR ALL MULTI WIRE BRANCH CIRCUITS AS REQUIRED BY CEC 210.4.
- PANEL A,B - RECEPTACLE, KITCHEN LOADS
PANEL C - HVAC LOADS
PANEL G - FUELING LOADS
PANEL L - LIGHTING LOADS

UTILITY XFMR
300 KVA PROPOSED SIZE
COORDINATE WITH UTILITY COMPANY

PRIMARY 12.47kV 3P 3W
SECONDARY 208Y/120V 3P 4W
FAULT 47.45 kA
IMPEDANCE 1.8%
8.37 (cal)
CONNECTED kVA 402
CALCULATED kVA 401

POWER DISTRIBUTION RISER DIAGRAM

SCALE: NONE

POWER RISER FLAG NOTES:

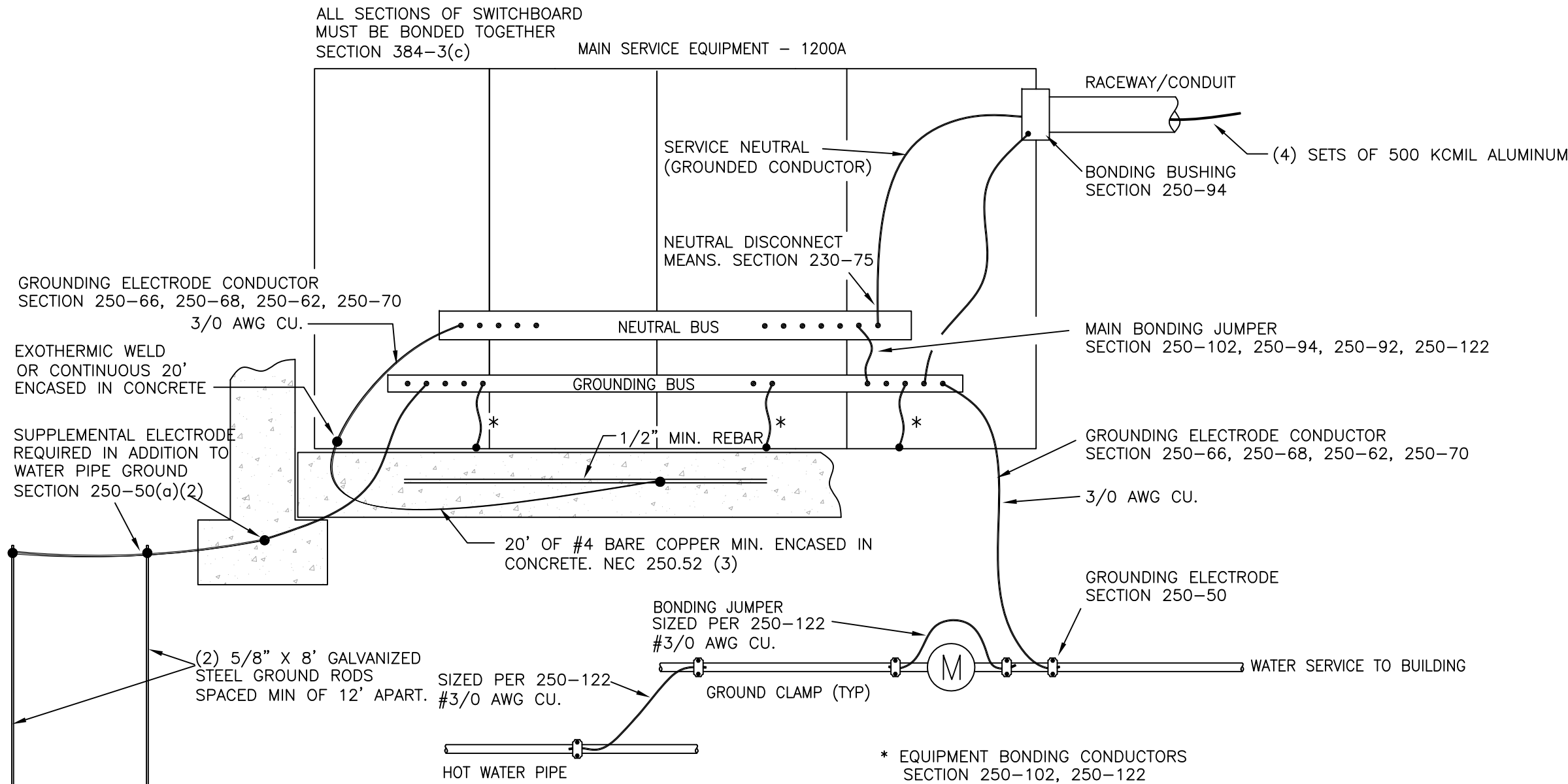
- UTILITY APPROVED SWITCHBOARD WITH PULL SECTION AND METERING COMPARTMENT.
- CAROLINA POWER, INC. UNITIZED PANEL SYSTEM PROVIDED BY ARCO.
- SWITCHBOARD BUS INCREASED FOR PHOTOVOLTAIC SYSTEM NEC 705.12 COMPLIANCE. REFER TO CALCULATION ON THIS SHEET.
- PROVIDE PHOTOVOLTAIC INPUT BREAKER AT BOTTOM OF BUS. REFER TO PANEL SCHEDULES FOR BREAKER PROVISIONS.
- SERVICE DISCONNECT

FEEDER SCHEDULE

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES	TOTAL WIRE COUNT	CONDUCTOR WIRE COUNT	CONDUCTOR WIRE SIZE	NEUTRAL WIRE COUNT	NEUTRAL WIRE SIZE	GROUND WIRE SIZE	NUMBER OF RUNS	CONDUIT SIZE
1	70	1"C,3#4,#8G	RTU-1	3	3	#4	0		#8	1	1"C
2	90	1-1/4"C,3#2,#8G	RTU-2	3	3	#2	0		#8	1	1-1/4"C
3	100	1-1/2"C,3#1,#1N,#8G	G, L	4	3	#1	1	#1	#8	1	1-1/2"C
4	200	2"C,3#3/0,#3/ON,#6G	A, B	4	3	#3/0	1	#3/0	#6	1	2"C
5	400	(2)2-1/2"C,3#250kcmil AL,#250kcmil AL N,#1/0 AL G	CW	4	3	#250kcmil AL	1	#250kcmil AL	#1/0 AL	2	2-1/2"C
6	400	3-1/2"C,3#600kcmil,#600kcmil N,#2G	C, EV	4	3	#600kcmil	1	#600kcmil	#2	1	3-1/2"C
7	600	(2)3"C,3#500kcmil AL,#500kcmil AL N,#2/0 AL G	MDP-1	4	3	#500kcmil AL	1	#500kcmil AL	#2/0 AL	2	3"C
8	1200	(4)3"C,3#500kcmil AL,#500kcmil AL N	MSB-2	4	3	#500kcmil AL	1	#500kcmil AL		4	3"C

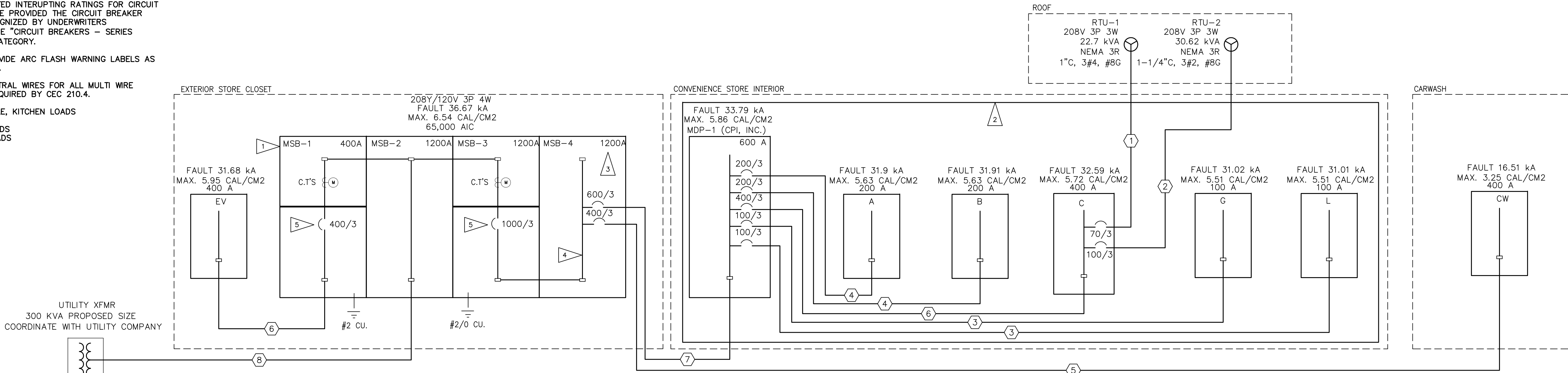
SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE, ALUMINUM, 75°C #12 ONWARD
EQUIPMENT GROUND WIRE SIZED WITH COPPER. ELECTRICAL CONTRACTOR MAY OPT TO USE ALUMINUM WIRE SIZED PER CEC
ALUMINUM DENOTED BY "AL", ALL WIRES NOT DENOTED WITH "AL" ARE COPPER.

CONTRACTOR MAY SELECT EITHER METHOD SHOWN WITHIN GROUNDING DETAIL.



GROUNDING DETAIL

SCALE: NONE



NOTE: PANELS (A, B, C, G & L) ARE FACTORY INSTALLED WITH BREAKERS AND WIRING.
CPI, INC. UNITIZED PANEL SYSTEM IS TO BE PROVIDED BY THE GENERAL CONTRACTOR.

NEC 705.12 B (3) (2)

MAIN OVERCURRENT DEVICE, 1000A X 1.25 = 1250A
FUTURE PV OUTPUT, 30A X 1.25 = 38A
TOTAL = 1,288A

MSB-4 BUS RATING = 1200A x 1.2 = 1440A

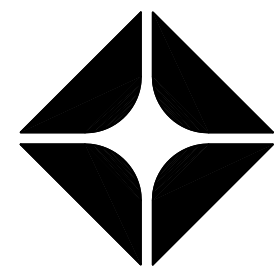
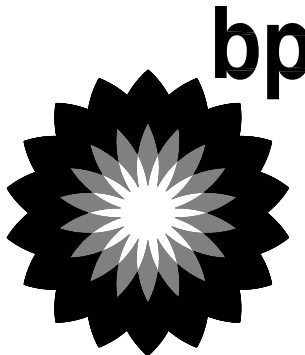
1,288A < 1440A

ABOSSEIN #223054

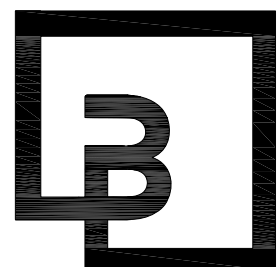
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CLIENT:



BP WEST COAST PRODUCTS, LLC



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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADN:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

SINGLE LINE
DIAGRAM

SHEET NO:

E2.0

UTILITY XFMR

ROOM MOUNTING FED FROM UTILITY NOTE PROPOSED			VOLTS 208Y/120V 3P 4W BUS AMPS NEUTRAL 100%			AIC 50,000 MAIN BKR LUGS STANDARD			
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS			
			A	B	C				
1	—/3	SWITCHBOARD MSB—2	136	142	124	(2)3" C, 3#350kcmil, #350kcmil N			
2	20/3	SPACE	0	0	0				
TOTAL CONNECTED KVA BY PHASE			136	142	124				
			CONN KVA	CALC KVA		CONN KVA	CALC KVA		
LIGHTING			15.8	19.7	(125%)	CONTINUOUS	82.8	104	(125%)
LARGEST MOTOR			33.3	41.6	(125%)	HEATING	55.6	55.6	(100%)
OTHER MOTORS			28.9	28.9	(100%)	COOLING	43.4	0	(0%)
RECEPTACLES			19.3	14.6	(50%-10)	NONCONTINUOUS	81.9	81.9	(100%)
KITCHEN EQUIP			84.7	55	(65%)	DIVERSE	0	0	(N/A)
						METERED DEMAND	0	0	(125%)
						TOTAL KVA	402	401	
						BALANCED 3—PHASE AMPS		1,110	

MSB-3

ROOM MOUNTING SURFACE FED FROM MSB-2 NOTE			VOLTS 208Y/120V 3P 4W BUS AMPS 1200 NEUTRAL 100%			AIC 65,000 MAIN BKR 1000 LUGS STANDARD			
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS			
			A	B	C				
1	—/3	SWITCHBOARD MSB-4	109	115	96.9	(4)3"3C,3#500kcmil AL #500kcmil AL N			
2	20/3	SPACE	0	0	0				
3	20/3	SPACE	0	0	0				
4	20/3	SPACE	0	0	0				
5	20/3	SPACE	0	0	0				
6	20/3	SPACE	0	0	0				
TOTAL CONNECTED KVA BY PHASE			109	115	96.9				
			CONN KVA	CALC KVA		CONN KVA	CALC KVA		
LIGHTING			15.8	19.7	(125%)	CONTINUOUS	1.8	2.25	(125%)
LARGEST MOTOR			33.3	41.6	(125%)	HEATING	55.6	55.6	(100%)
OTHER MOTORS			28.9	28.9	(100%)	COOLING	43.4	0	(0%)
RECEPTACLES			19.3	14.6	(50%-10)	NONCONTINUOUS	81.9	81.9	(100%)
KITCHEN EQUIP			84.7	55	(65%)	DIVERSE	0	0	(N/A)
						METERED DEMAND	0	0	(125%)
						TOTAL KVA	321	300	
						BALANCED 3-PHASE AMPS	832	832	

A

ROOM ELEC ROOM MOUNTING SURFACE FED FROM MDP-1 NOTE			VOLTS 208Y/120V 3P 4W BUS AMPS 200 NEUTRAL 100%			AIC 42,000 MAIN BKR MLO LUGS STANDARD					
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	20/1	A14A – FROZEN BEVERAGE MACHINE 92 BARREL	1.44			2	30/2	A33 – COFFEE BEAN–TO–CUP GRINDER	2.08		
3	20/1	A1C – CAPPUCCINO MACHINE (6 HEAD)	1.8			4			2.08		
5	20/1	TG8A NACHO CHEESE DISPENSER		0.2		6	30/2	A33 – COFFEE BEAN–TO–CUP GRINDER			2.08
7	20/1	TG8A NACHO CHEESE DISPENSER	0.2			8			2.08		
9	20/2	TG3 – FOOD WARMER		0.828		10	30/2	A33 – COFFEE BEAN–TO–CUP GRINDER		2.08	
11				0.828		12				2.08	
13	20/1	TG1 – MICROWAVE OVEN	1.8			14	20/1	B12A ICE DRINK DISPENSER	0.63		
15	20/1	B7B – ILLUMINATED DISPLAY BOARD	1			16	20/1	B12A ICE DRINK DISPENSER		0.63	
17	20/2	B2A – FOUNTAIN TOP MOUNT ICE MAKER	1.3	1.3		20	20/2	B2B FOUNTAIN ICE MAKER		1.56	
19			1.3			22			1.56		
21	40/2	B1B – FROZEN BEVERAGE DISPENSER (4 FLAVOR)	3.12			20	20/1	B14D – FCB GRAPHIC FOR 36" CART	1		
23				3.12		24	30/2	TG4B – REFRIGERATED SELF–SERVICE ISLAND		2.47	
25	20/1	TG35D – FREE STANDING BAKERY CASE	1			26			2.47		
27	20/1	TG10B – MEDIUM REFRIGERATED CONDIMENT ISLAND	1	1		28	20/1	B15 – F'REAL BLENDER	0.78		
29	20/1	SALES AREA RECEPTACLE	0.72	0.54		30	20/1	B15A – F'REAL FREEZER		0.78	
31	20/1	SALES AREA RECEPTACLE				32	20/1	SHOW WINDOW RECEPTACLE	1.08		
33	20/1	C18B – ICE CREAM CASE	1.44			34	20/1	TG37 – ENERGY ZONE COOLER		1.39	
35	20/1	C18B – ICE CREAM CASE		1.44		36	20/1	LAVATORY FAUCET		0.36	
37	20/1	E2 ATM	1			38	20/1	SPACE	0		
39	20/1	SPACE		0		40	20/1	SPACE		0	
41	20/1	SPACE		0		42	20/1	SPACE			0
						TOTAL CONNECTED KVA BY PHASE			17.4	17.1	16.8

MSB-1

ROOM MOUNTING SURFACE FED FROM MSB-2 NOTE			VOLTS 208Y/120V 3P 4W BUS AMPS 400 NEUTRAL 100%			AIC 65,000 MAIN BKR 400 LUGS STANDARD		
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS		
			A	B	C			
1	—/3	PANEL EV	27	27	27	3—1/2" C, 3#600kcmil, #600kcmil N, #2G		
2	20/3	SPACE	0	0	0			
3	20/3	SPACE	0	0	0			
4	20/3	SPACE	0	0	0			
5	20/3	SPACE	0	0	0			
6	20/3	SPACE	0	0	0			
TOTAL CONNECTED KVA BY PHASE			27	27	27			
			CONN KVA	CALC KVA		CONN KVA	CALC KVA	
LIGHTING			0	0	(125%)	CONTINUOUS	81 101 (125%)	
LARGEST MOTOR			0	0	(N/A)	HEATING	0 0 (N/A)	
OTHER MOTORS			0	0	(100%)	COOLING	0 0 (N/A)	
RECEPTACLES			0	0	(50%>10)	NONCONTINUOUS	0 0 (100%)	
KITCHEN EQUIP			0	0	(N/A)	DIVERSE	0 0 (N/A)	
						METERED DEMAND	0 0 (125%)	
						TOTAL KVA	81 101	
						BALANCED 3—PHASE AMPS	281	

MSB-4

ROOM EXTERIOR CLOSET MOUNTING SURFACE FED FROM MSB-3 NOTE			VOLTS 208Y/120V 3P 4W BUS AMPS 1200 NEUTRAL 100%			AIC 65,000 MAIN BKR MLO LUGS STANDARD		
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS		
			A	B	C			
1	600/3	SWITCHBOARD MDP-1	68.8	74.4	59	(2)3" C, 3#500kcmil AL N, #2/0 AL G		
2	400/3	PANEL CW	40.1	41.1	37.9	(2)2-1/2" C, 3#250kcmil AL N, #1/0 AL G		
3	20/3	SPACE	0	0	0			
4	20/3	SPACE	0	0	0			
5	20/3	SPACE	0	0	0			
6	30/3	PV SYSTEM INPUT BREAKER	0	0	0	--		
TOTAL CONNECTED KVA BY PHASE			109	115	96.9			
					</			

B

ROOM ELEC ROOM MOUNTING SURFACE FED FROM MDP-1 NOTE		VOLTS 208Y/120V 3P 4W BUS AMPS 200 NEUTRAL 100%			AIC 42,000 MAIN BKR MLO LUGS STANDARD						
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	20/1	SPACE	0	0.36		2	20/1	G54 — CARBONATOR	0.864	0.864	
3	20/1	TELEPHONE BACKBOARD QUAD RECEPTACLE				4	20/1	G10A — WATER BOOSTER			
5	20/1	QUAD RECEPTACLE FOR VERIFONE POS & HUGHES NETWORK EQUIPMENT RECEPTACLE		0.36		6	20/1	LAVATORY FAUCET			0.18
7	20/1	G21 — 2-DOOR REACH-IN REFRIGERATOR	0.84			8	20/2	G6A ICE MACHINE	1.87		
9	20/1	OFFICE CONTROLLED RECEPTACLE	0.36			10			1.87		
11	20/1	DVR RACK RECEPTACLE		0.18		12	20/1	OFFICE RECEPTACLE			0.18
13	20/1	TG6 — BUN TOASTER	1.56			14	20/1	F5 CCTV-RECORDER/DVR/MONITOR	0.84		
15	20/1	TG5A — WORKTOP REFRIGERATOR	0.864			16	20/1	F4 COMPUTER SYSTEM	0.304		
17	20/1	TG9 — FOOD LABEL PRINTER		1		18	20/1	F12 PRINTER			1
19	40/3	TG7 — VENTLESS OVEN	3.53			20	20/1	F11 BATTERY BACKUP	0.36		
21				3.53		22	20/1	OGARETTE RACK RECEPTACLE		0.36	
23				3.53		24	20/1	C2 — CASH REGISTERS/POS			1.8
25	20/1	HAND DRYER	1.4			26	20/1	C5 — SAFE	1.44		
27	20/1	HAND DRYER		1.4		28	20/1	C2 — CASH REGISTERS/POS		1.8	
29	20/1	LAVATORY FAUCET		0.18		30	20/1	SALES COUNTER CONVENIENCE RECEPTACLE			0.36
31	20/1	EXTERIOR RECEPTACLE	0.18			32	20/1	C6A — LOTTO TERMINAL	1.44		
33	20/1	RPBA HOT BOX		0.1		34	20/1	C2 — CASH REGISTERS/POS		1.8	
35	20/1	RPBA HOT BOX		0.1		36	20/1	C3 — INTERCOM TO FUEL POSITIONS			1
37	20/1	SPACE	0			38	20/1	SPACE	0		
39	20/1	SPACE	0			40	20/1	SPACE	0	0	
41	20/1	SPACE		0		42	20/1	SPACE			0
TOTAL CONNECTED KVA BY PHASE									14.3	13.6	9.87
			CONN KVA	CALC KVA					CONN KVA	CALC KVA	
LIGHTING			0	0	(125%)	CONTINUOUS			0	0	(125%)
LARGEST MOTOR			1.4	1.75	(125%)	HEATING			0.2	0.2	(100%)
OTHER MOTORS			1.4	1.4	(100%)	COOLING			0	0	(N/A)
RECEPTACLES			15.1	12.6	(50% \times 10)	NONCONTINUOUS			0.36	0.36	(100%)
KITCHEN EQUIP			19.3	14.3	(LARGEST 2)	DIVERSE			0	0	(N/A)
						METERED DEMAND			0	0	(125%)
						TOTAL KVA			37.8	30.6	
						BALANCED 3-PHASE AMPS			85	85	

MSB-2

ROOM MOUNTING SURFACE FED FROM UTILITY XFMR NOTE			VOLTS 208Y/120V 3P 4W BUS AMPS 1200 NEUTRAL 100%			AIC 65,000 MAIN BKR MLO LUGS STANDARD					
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS					
			A	B	C						
1	—/3	SWITCHBOARD MSB-1	27	27	27	(2)2-1/2" C, 3#250kcmil AL, #250kcmil AL N (4)3" C, 3#500kcmil AL, #500kcmil AL N					
2	—/3	SWITCHBOARD MSB-3	109	115	96.9						
TOTAL CONNECTED KVA BY PHASE			136	142	124						
			CONN KVA		CALC KVA		CONN KVA		CALC KVA		
LIGHTING			15.8	19.7	(125%)	CONTINUOUS			82.8	104	(125%)
LARGEST MOTOR			33.3	41.6	(125%)	HEATING			55.6	55.6	(100%)
OTHER MOTORS			28.9	28.9	(100%)	COOLING			43.4	0	(0%)
RECEPTACLES			19.3	14.6	(50% \times 10)	NONCONTINUOUS			81.9	81.9	(100%)
KITCHEN EQUIP			84.7	55	(65%)	DIVERSE			0	0	(N/A)
						METERED DEMAND			0	0	(125%)
						TOTAL KVA			402	401	
						BALANCED 3-PHASE AMPS			1,110	1,110	

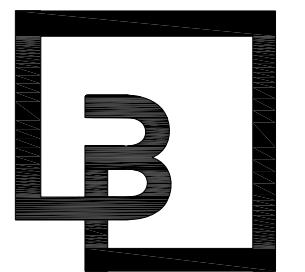
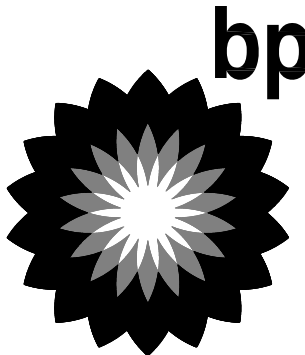
MDP-1

ROOM ELECTRICAL BACKROOM MOUNTING SURFACE FED FROM MSB-4 NOTE			VOLTS 208Y/120V 3P 4W BUS AMPS 600 NEUTRAL 100%			AIC 65,000 MAIN BKR MLO LUGS STANDARD			
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS			
			A	B	C				
1	200/3	PANEL A	17.4	17.1	16.8	2"2, 3#3/0, #3/0N, #6G			
2	200/3	PANEL B	14.3	13.6	9.87	2"2, 3#3/0, #3/0N, #6G			
3	400/3	PANEL C	26.6	25.7	25.5	3-1/2"2, 3#600kcmil, #600kcmil N, #2G			
4	100/3	PANEL G	6	13.2	2.7	1-1/2"2, 3#1, #1N, #8G			
5	100/3	PANEL L	4.52	4.72	4.2	1-1/2"2, 3#1, #1N, #8G			
TOTAL CONNECTED KVA BY PHASE			68.8	74.4	59				
			CONN KVA	CALC KVA		CONN KVA	CALC KVA		
LIGHTING			14.7	18.3	(125%)	CONTINUOUS	1.8	2.25	(125%)
LARGEST MOTOR			24.5	6.12	(25%)	HEATING	55.6	55.6	(100%)
OTHER MOTORS			13.1	13.1	(100%)	COOLING	43.4	0	(0%)
RECEPTACLES			18.5	14.3	(50%-10)	NONCONTINUOUS	13.8	13.8	(100%)
KITCHEN EQUIP			84.7	55	(65%)	DIVERSE	0	0	(N/A)
						METERED DEMAND	0	0	(125%)
						TOTAL KVA	202	178	
						BALANCED 3-PHASE AMPS	495	495	

C

ROOM ELEC ROOM			VOLTS 208Y/120V 3P 4W			AIC 42,000					
MOUNTING SURFACE			BUS AMPS 400			MAIN BKR MLO					
FED FROM MDP-1			NEUTRAL 100%			LUGS STANDARD					
NOTE											
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	15/1	ERV-1	0.72			2	20/1	D10 EVAPORATOR COILS	0.84		
3	50/3	G8 – WH-1		4		4	20/1	D10 EVAPORATOR COILS		0.84	
5					4	6	20/2	D11 EVAPORATOR COILS			0.21
7			4			8			0.21		
9	20/1	HWRCP-1		0.18		10	20/1	HEAT TAPE			0.1
11	25/2	G6C – ICE MAKER REMOTE			1.3	12	20/1	ROOFTOP EF-2			0.696
13		CONDENSING UNIT	1.3			14	25/2	B2E – ICE MAKER REMOTE	0.78		
15	20/1	B2C – ICE MAKER REMOTE		1.56		16		CONDENSING UNIT		0.78	
17	20/1	CONDENSING UNIT			0.9	18	20/3	D10A – CU-1			1.33
19	70/3	ROOFTOP RECEPTACLE	6.05			20			1.33		
21		RTU-1		6.05		22				1.33	
23					6.05	24	20/3	D10A – CU-2			1.33
25	100/3	RTU-2	8.17			26			1.33		
27				8.17		28				1.33	
29					8.17	30	20/3	D11A – CU-3			1.33
31	20/1	SPACE	0			32			1.33		
33	20/1	SPACE		0		34				1.33	
35	20/1	SPACE			0	36	20/1	DOOR SHUTTER AND SECURITY			0.18
37	20/1	SPACE				38	20/1	SYSTEM JBOX	0.528		
39	20/1	SPACE	0			40	20/1	ACN-1		0	
41	20/1	SPACE		0		42	20/1	SPACE			0
						TOTAL CONNECTED KVA BY PHASE			26.6	25.7	25.5

CLIENT:



Barghausen
Consulting Engineers, Inc.

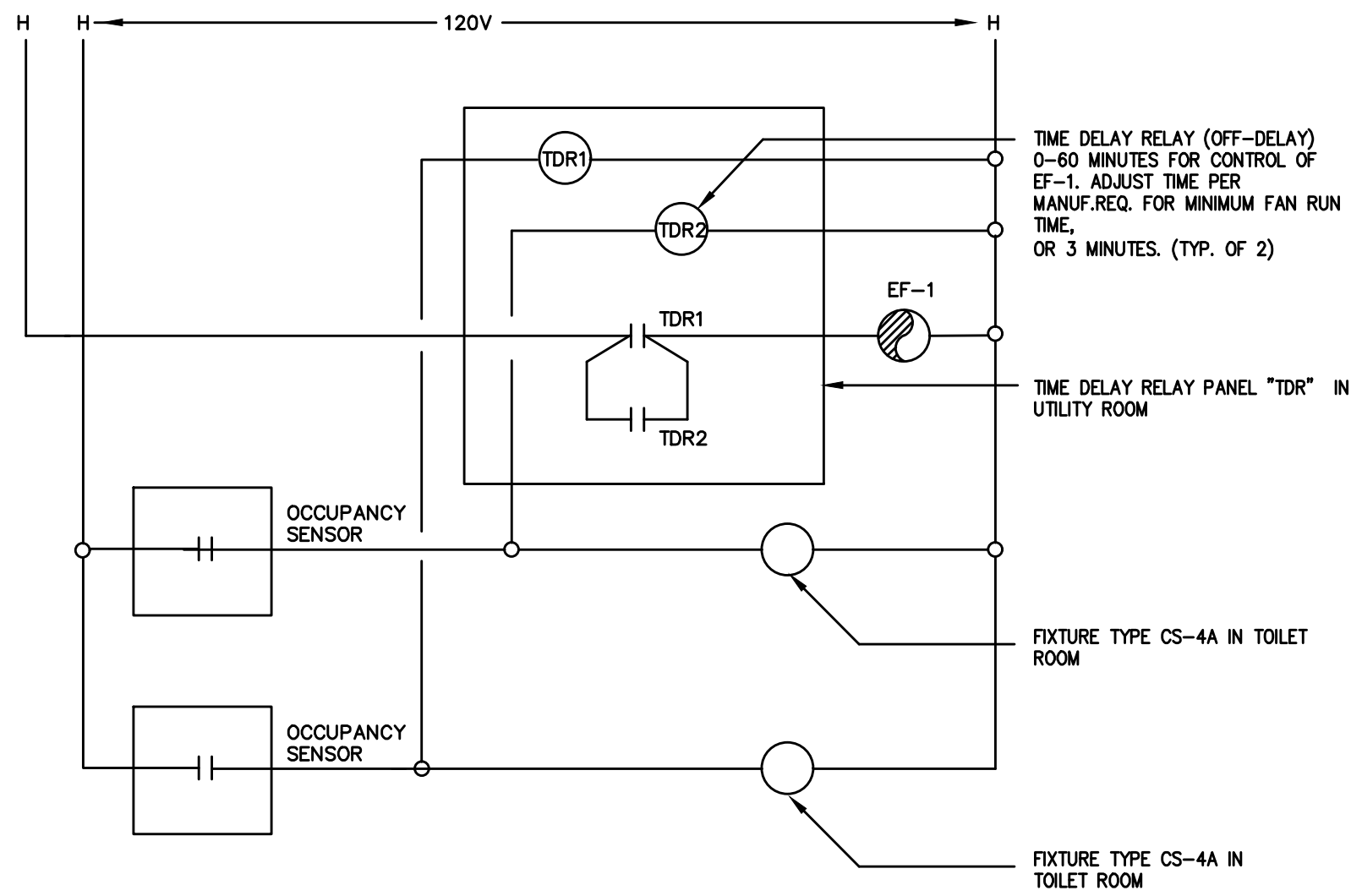
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ROOM ELEC ROOM			VOLTS 208Y/120V 3P 4W			AIC 42,000					
MOUNTING SURFACE			BUS AMPS 100			MAIN BKR MLO					
FED FROM MDP-1			NEUTRAL 100%			LUGS STANDARD					
NOTE SMART PANEL, SITE, FUEL CANOPY LIGHTING & SITE SIGNAGE TO VARY BASED ON PROJECT											
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	20/1	SALES AREA EM LIGHTING, LIGHTING, LIGHTING (WITH EMERGENCY BATTERY)	0.708			2	20/1	LIGHTING CONTACTOR	0.5		
3	20/1	SALES AREA LIGHTING		0.448		4	20/1	WALK-IN COOLER, FREEZER		0	
5	20/1	SALES AREA LIGHTING			0.576	6	20/1	EXTERIOR STORE LIGHTING			1.1
7	20/1	PREP/UTILITY/STORAGE/OFFICE EM BACKUP, LIGHTING, LIGHTING (WITH EMERGENCY BATTERY)	0.553			8	20/1	EXTERIOR ARCO SIGN	0.3		
9	20/1	ELECTRICAL ROOM EM BACKUP, LIGHTING, LIGHTING (WITH EMERGENCY BATTERY)		0.091		10	20/1	WALK-IN COOLER DOOR LIGHTS		0.25	
11	20/1	WALK-IN COOLER/FREEZER DOOR, FOOD SERVICE EQUIPMENT COUNTER EM LIGHTING, LIGHTING			0.221	12	20/1	WALK-IN COOLER DOOR LIGHTS			0.25
13	20/1	WALK-IN COOLER DOOR LIGHTS	0.25			14	20/1	CASHIER RED LIGHT JUNCTION BOX	0.18		
15	20/1	TG45 - UV FLY LIGHT		1		16	20/1	RESTROOM EF-1, LIGHTING, LIGHTING (WITH EMERGENCY BATTERY)			1.06
17	20/2	SITE POLE LIGHTING			0.347	18	20/1	D3 - WALK-IN FREEZER GLASS DOOR ASSEMBLY DISPLAY			0.86
19			0.347			20	20/1	FUEL CANOPY JUNCTION BOX LIGHTING, LIGHTING	1.02		
21	20/1	MONUMENT SIGN		0.24		22	20/1	FUEL CANOPY LIGHTING		0.918	
23	20/1	MONUMENT SIGN			0.24	24	20/1	ILLUMINATED LOGO SIGN, JUNCTION BOX LIGHTING			0.6
25	20/1	TRASH ENCLOSURE LIGHTING	0.063			26	20/1	ILLUMINATED LOGO SIGN, JUNCTION BOX LIGHTING	0.6		
27	20/1	TRASH ENCLOSURE EXTERIOR LIGHTING		0.118		28	20/1	ILLUMINATED LOGO SIGN, JUNCTION BOX LIGHTING		0.6	
29	20/1	SPACE			0	30	20/1	SPACE			0
31	20/1	SPACE				32	20/1	SPACE	0		
33	20/1	SPACE	0	0		34	20/1	SPACE		0	
35	20/1	SPACE			0	36	20/1	SPACE			0
37	20/1	SPACE				38	20/1	SPACE	0		
39	20/1	SPACE		0		40	20/1	SPACE		0	
41	20/1	SPACE			0	42	20/1	SPACE			0
						TOTAL CONNECTED KVA BY PHASE			4.52	4.72	4.2
			CONN KVA	CALC KVA					CONN KVA	CALC KVA	
LIGHTING			12.5	15.6	(125%)	CONTINUOUS			0	0	(125%)
LARGEST MOTOR			0.468	0.585	(125%)	HEATING			0	0	(N/A)
OTHER MOTORS			0.468	0.468	(100%)	COOLING			0	0	(N/A)
RECEPTACLES			0	0	(50%>10)	NONCONTINUOUS			0	0	(100%)
KITCHEN EQUIP			0	0	(N/A)	DIVERSE			0	0	(N/A)
						METERED DEMAND			0	0	(125%)
TOTAL KVA			13.4	16.7		TOTAL KVA			13.4	16.7	
						BALANCED 3-PHASE AMPS				46.3	

EV											
ROOM MOUNTING SURFACE			VOLTS 208Y/120V 3P 4W					AIC 42,000			
FED FROM MSB-1			BUS AMPS 400					MAIN BKR MLO			
NOTE			NEUTRAL 100%					LUGS STANDARD			
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	100/3	EV CHARGER	9			2	100/3	EV CHARGER INFRASTRUCTURE	9		
3				9		4				9	
5					9	6					9
7	100/3	EV CHARGER INFRASTRUCTURE	9			8	20/1	SPACE	0		
9				9		10	20/1	SPACE		0	
11					9	12	20/1	SPACE			0
13	20/1	SPACE	0			14	20/1	SPACE	0		
15	20/1	SPACE		0		16	20/1	SPACE		0	
17	20/1	SPACE			0	18	20/1	SPACE			0
19	20/1	SPACE	0			20	20/1	SPACE	0		
21	20/1	SPACE		0		22	20/1	SPACE	0	0	
23	20/1	SPACE			0	24	20/1	SPACE			0
25	20/1	SPACE	0			26	20/1	SPACE	0		
27	20/1	SPACE			0	28	20/1	SPACE		0	
29	20/1	SPACE			0	30	20/1	SPACE			0
31	20/1	SPACE	0			32	20/1	SPACE	0		
33	20/1	SPACE		0		34	20/1	SPACE		0	
35	20/1	SPACE			0	36	20/1	SPACE			0
37	20/1	SPACE	0			38	20/1	SPACE	0		
39	20/1	SPACE			0	40	20/1	SPACE		0	
41	20/1	SPACE			0	42	20/1	SPACE			0
						TOTAL CONNECTED KVA BY PHASE			27	27	27
			CONN KVA	CALC KVA					CONN KVA	CALC KVA	
LIGHTING			0	0	(125%)	CONTINUOUS			81	101	(125%)
LARGEST MOTOR			0	0	(N/A)	HEATING			0	0	(N/A)
OTHER MOTORS			0	0	(100%)	COOLING			0	0	(N/A)
RECEPTACLES			0	0	(50%>10)	NONCONTINUOUS			0	0	(100%)
KITCHEN EQUIP			0	0	(N/A)	DIVERSE			0	0	(N/A)
						METERED DEMAND			0	0	(125%)
						TOTAL KVA			81	101	
						BALANCED 3-PHASE AMPS				281	

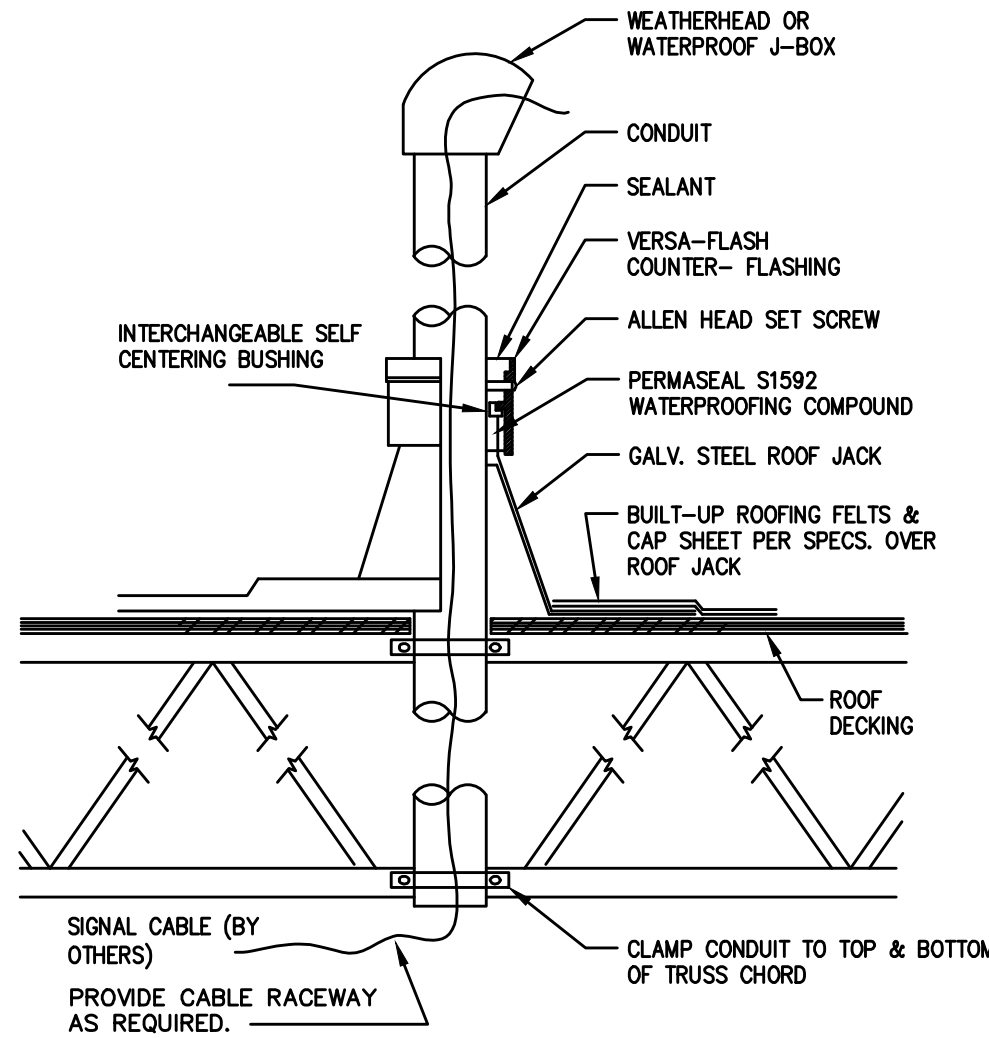
G											
ROOM ELEC ROOM			VOLTS 208Y/120V 3P 4W			AIC 42,000			ROOM MOUNTING SURFACE		
FED FROM MDP-1			BUS AMPS 100			MAIN BKR MLO			MOUNTING SURFACE		
NOTE			NEUTRAL 100%			LUGS STANDARD			FED FROM MDP-1		
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	20/1	C7 - TANK MONITOR EQUIPMENT	1.8			2	20/3	UNLEADED TURBINE #1	0.9		
3	20/1	DISPENSER #1		1.5		4				0.9	
5	20/1	SPACE			0	6					0.9
7	20/1	SPACE	0			8	20/3	UNLEADED PREMIUM TURBINE #1	0.9		
9	20/1	DISPENSER #2		1.5		10				0.9	
11	20/1	SPACE			0	12					0.9
13	20/1	SPACE	0			14	20/3	DIESEL TURBINE #1	0.9		
15	20/1	DISPENSER #3		1.5		16				0.9	
17	20/1	SPACE			0	18					0.9
19	20/1	SPACE	0			20	20/1	FUTURE VENT DIAGNOSTICS	1.5		
21	20/1	DISPENSER #4		1.5		22	20/1	ESO SWITCH		1.5	
23	20/1	SPACE			0	24	20/1	SPACE			0
25	20/1	SPACE	0			26	20/1	SPACE	0		
27	20/1	DISPENSER #5		1.5		28	20/1	SPACE		0	
29	20/1	SPACE			0	30	20/1	SPACE			0
31	20/1	SPACE	0			32	20/1	SPACE	0		
33	20/1	DISPENSER #6		1.5		34	20/1	SPACE		0	
35	20/1	SPACE			0	36	20/1	SPACE			0
37	20/1	SPACE	0			38	20/1	SPACE	0		
39	20/1	SPACE		0		40	20/1	SPACE		0	
41	20/1	SPACE			0	42	20/1	SPACE			0
TOTAL CONNECTED KVA BY PHASE									6	13.2	2.7
			CONN KVA	CALC KVA					CONN KVA	CALC KVA	
LIGHTING			0	0	(125%)	CONTINUOUS			1.8	2.25	(125%)
LARGEST MOTOR			2.7	3.38	(125%)	HEATING			0	0	(N/A)
OTHER MOTORS			5.4	5.4	(100%)	COOLING			0	0	(N/A)
RECEPTACLES			0	0	(50%>10)	NONCONTINUOUS			12	12	(100%)
KITCHEN EQUIP			0	0	(N/A)	DIVERSE			0	0	(N/A)
						METERED DEMAND			0	0	(125%)
						TOTAL KVA			21.9	23	
						BALANCED 3-PHASE AMPS			63.9		



TOILET ROOMS EXHAUST FAN CONTROL DIAGRAM

NTS

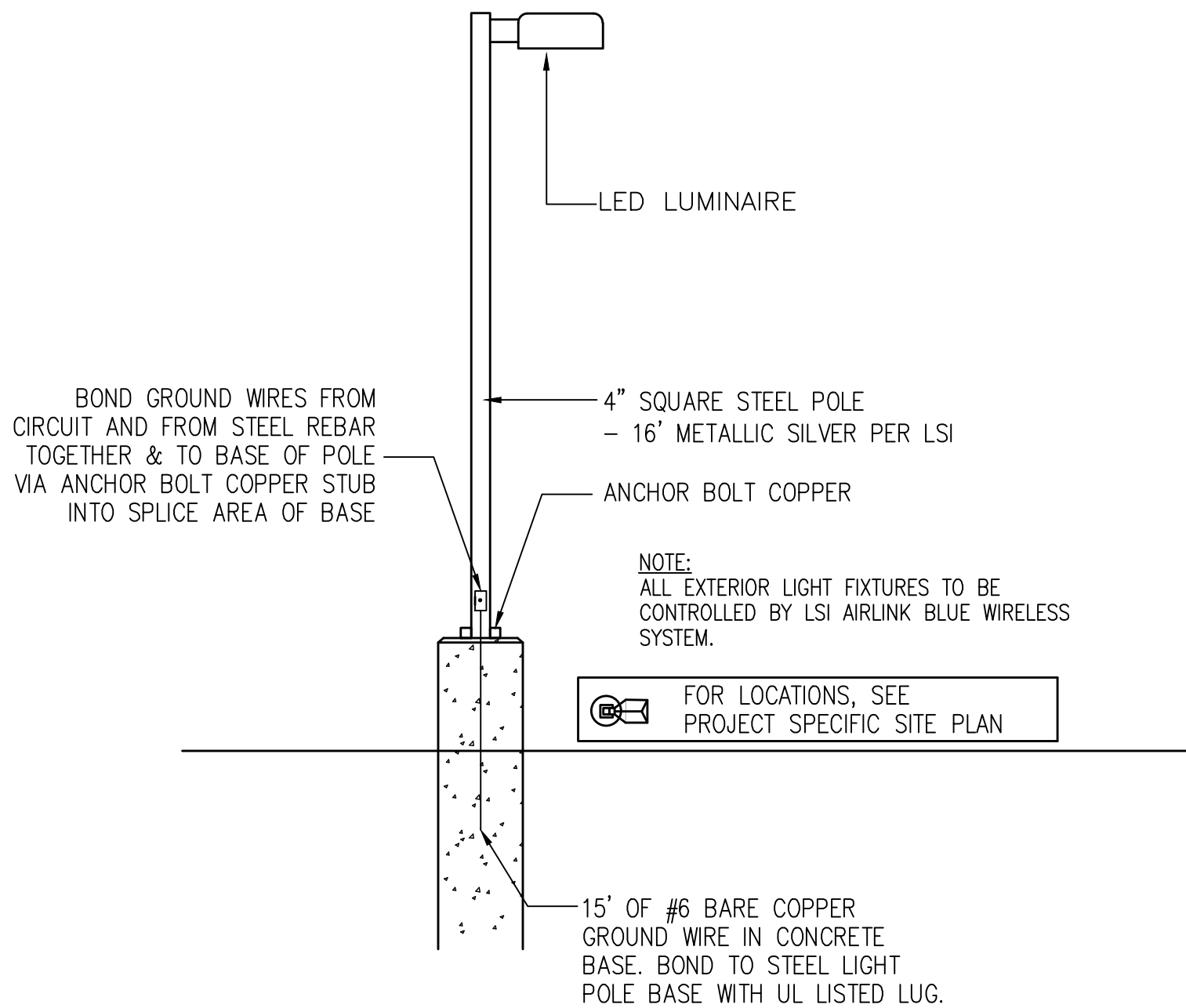
1



ROOF JACK-SIGNAL CABLE CONDUIT

NTS

2

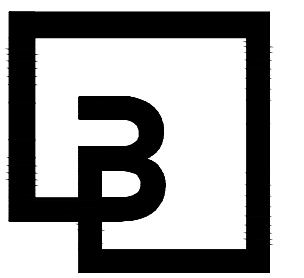
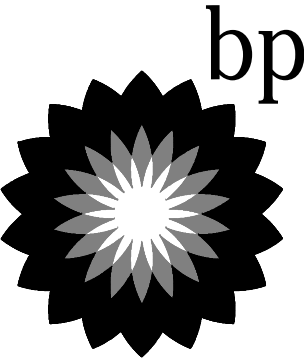


SITE LIGHT POLE BASE GROUNDING DETAIL

NTS

3

CLIENT:



Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADM:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:
**DIAGRAM + DETAILS
- PART 1**

SHEET NO:

E3.0

ABOSSEIN #223054

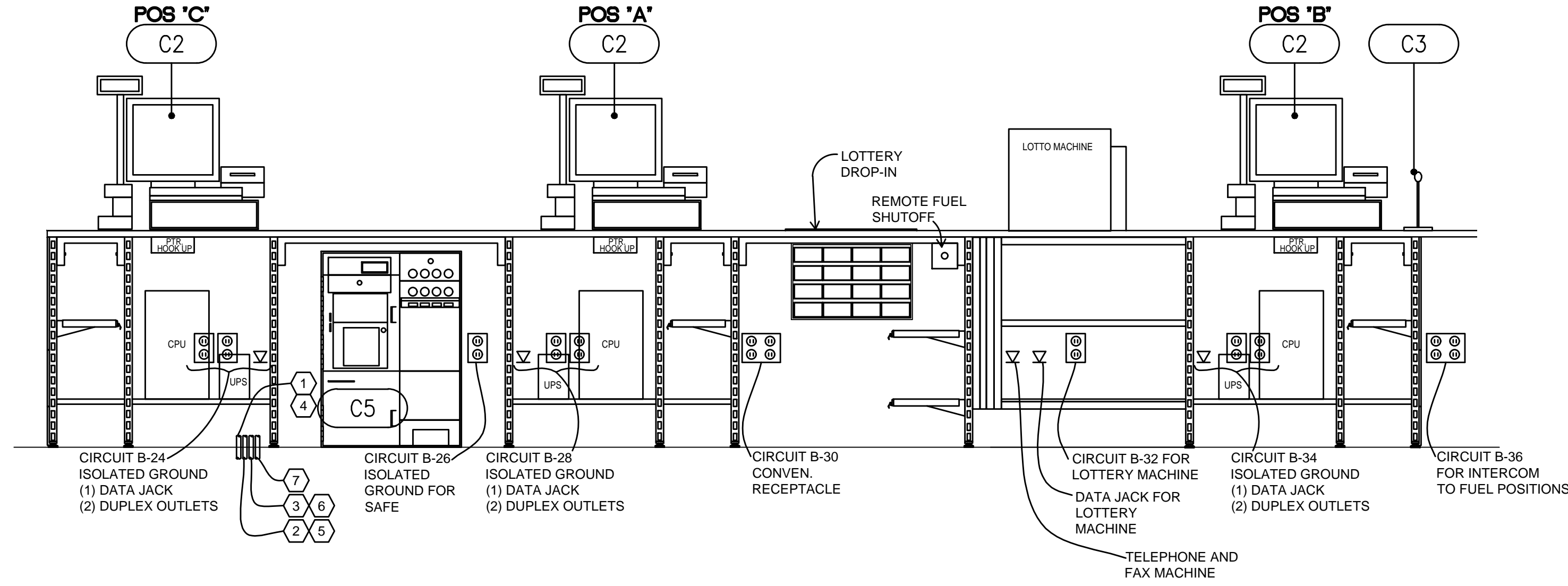
Abossein Engineering, L.L.C.
MECHANICAL - ELECTRICAL
CIVIL - LEED
FIRE PROTECTION
18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
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E-Mail: cservice@abossein.com
www.abossein.com

GENERAL NOTES:

- A. CASHIER ELEVATION IS FOR DESIGN INTENT ONLY. E.C. TO COORDINATE EXACT MILLWORK CONFIGURATION WITH MILLWORK MANUFACTURER PRIOR TO INSTALLATION OF ANY DEVICES.

KEYED NOTES:

- 1 1-1/4" CONDUIT FROM MANAGERS CPU FOR DATA CABLES.
2 1-1/4" CONDUIT FROM DISPENSER INTERFACE.
3 5-1" CONDUIT FROM PANEL C. (CLEAN POWER)
4 3/4" CONDUIT FROM OPTIONAL AUTOMATIC DOOR CONTROLLER.
5 1-3/4" CONDUIT UNDER SLAB FOR GENERAL POWER.
6 1-1/4" CONDUIT UNDER SLAB TO INTERCOM TROUGH.
7 3/4" CONDUIT UNDER SLAB TO MANAGERS DESK IN OFFICE FOR SECURITY.



SALES COUNTER DETAIL

SCALE: 3/4"=1'-0"

GENERAL NOTES

1. ALL WIRING MUST CONFORM TO NEC AND LOCAL ELECTRIC CODES.
2. ALL CONDUIT AND ELECTRICAL FITTINGS MUST BE RATED FOR GROUND USE.
3. POWER CONDITIONER SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS.
4. IO GROUND BUSS SHALL BE INSULATED FROM THE PANEL VIA A NON-CONDUCTIVE MOUNTING: SQUARE D PKGTAR OR EQUIVALENT.
5. THE POWER CONDITIONER OUTPUT AND ALL ISOLATED, CONDITIONED CIRCUITS ARE TO BE RUN IN SEPARATE CONDUITS FROM ALL NON-CONDITIONED CIRCUITS. MULTIPLE CONDITIONED CIRCUITS MAY SHARE THE SAME CONDUIT.
6. ALL GROUND CONDUCTORS IN SUB PANELS MUST TERMINATE TO PROPER GROUNDING CONNECTIONS. DO NOT TERMINATE GROUNDING CONDUCTORS TO THE NEUTRAL BUSS IN A SUB-PANEL.

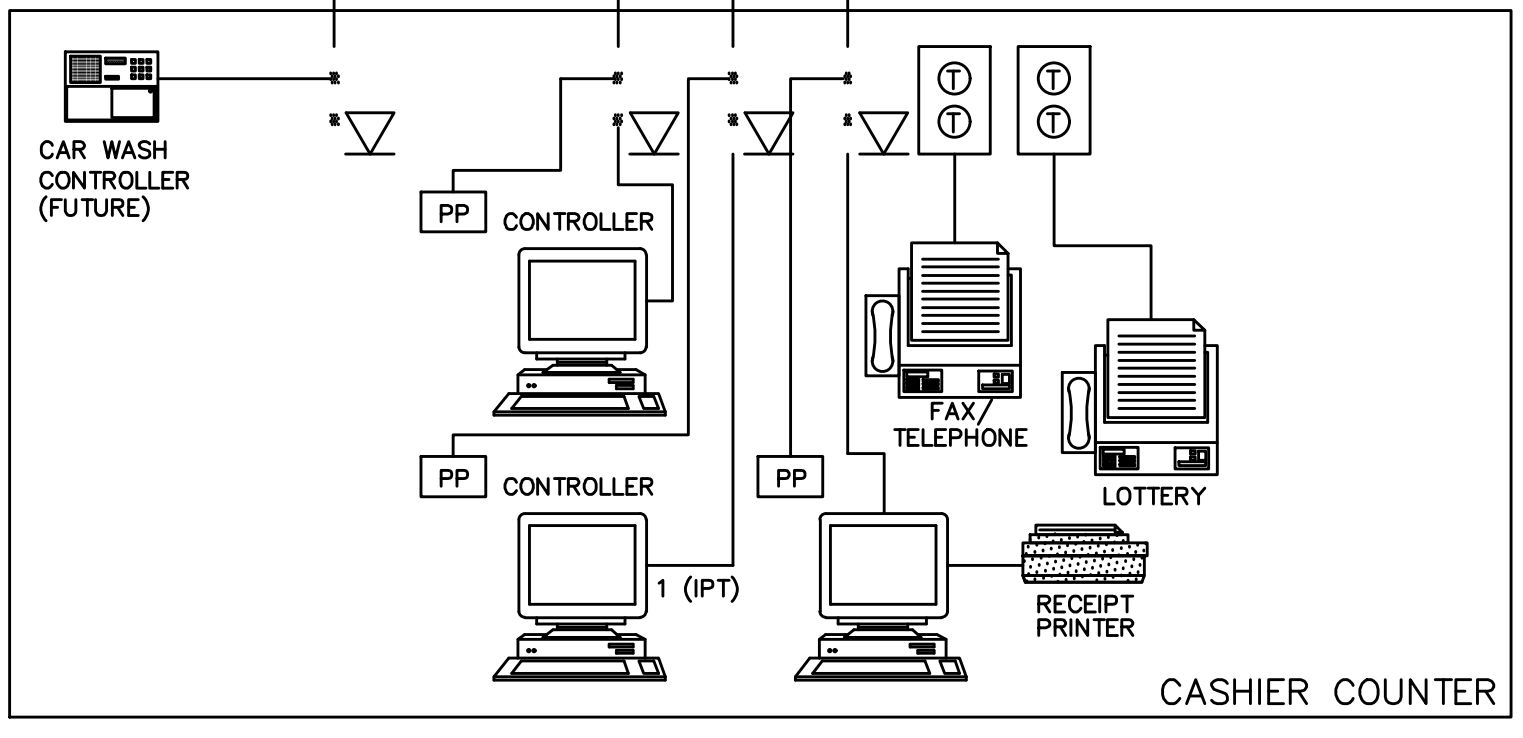
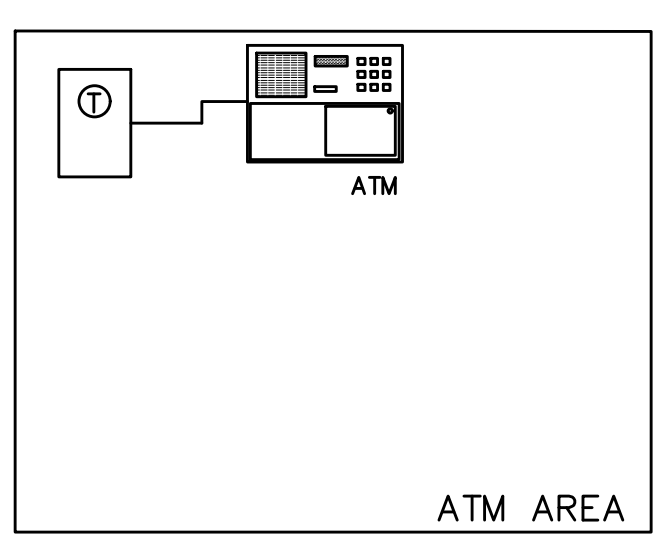
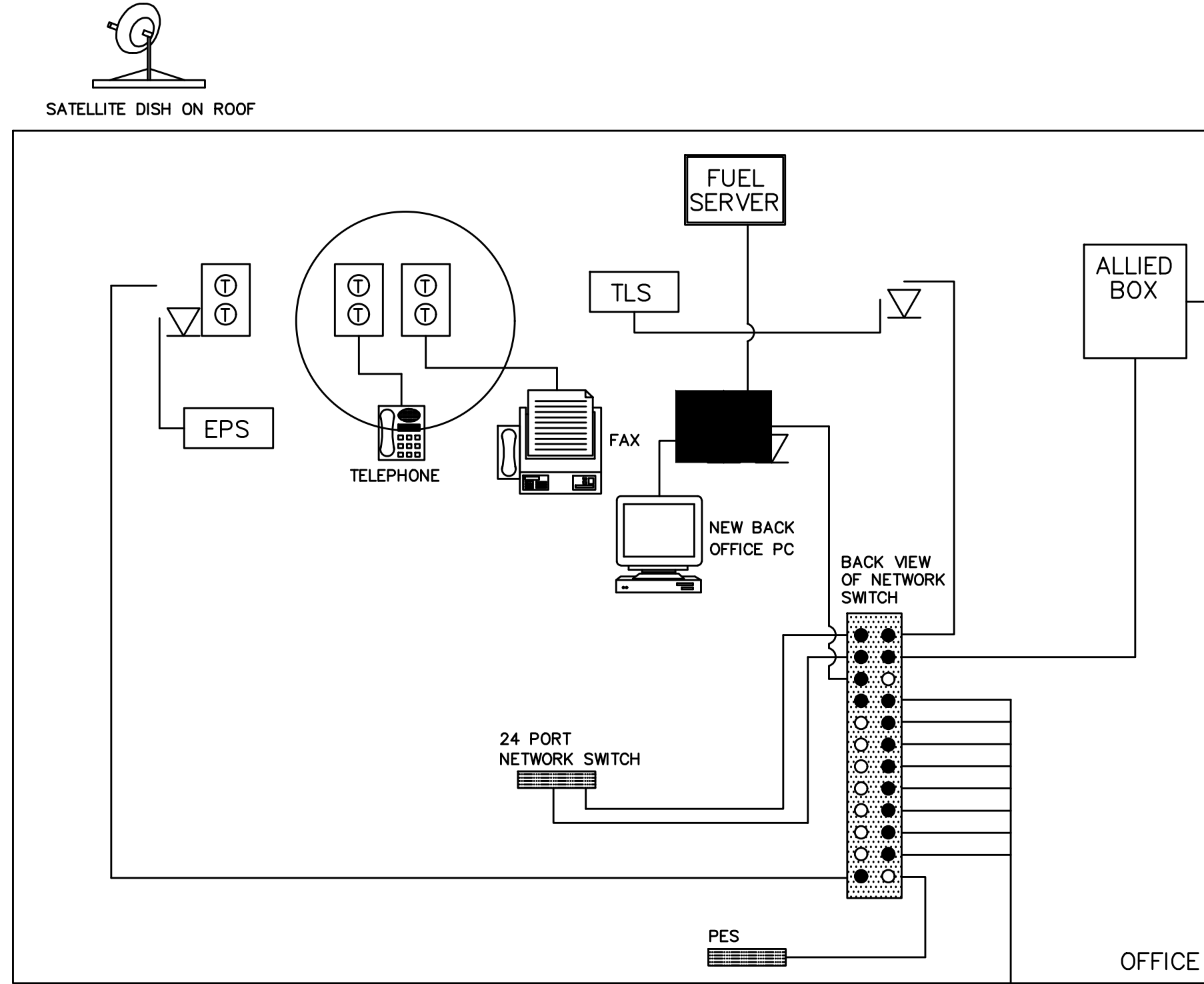
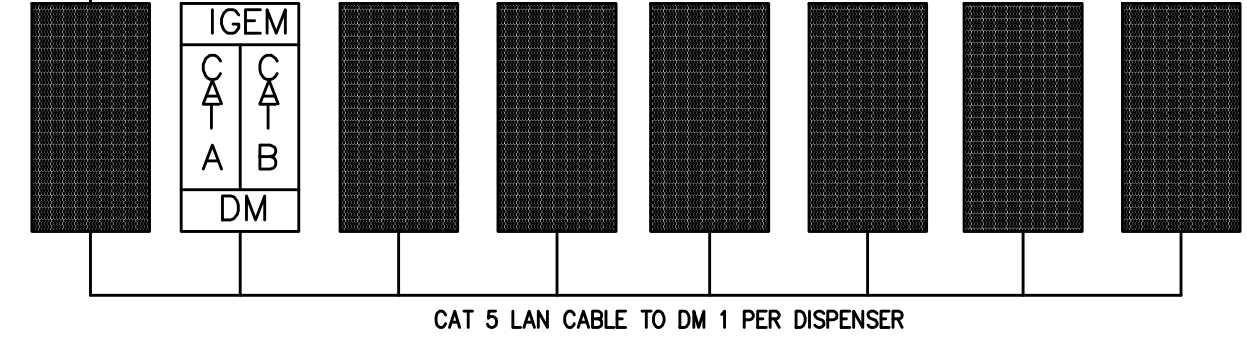
- NOTES:
1. FC NEEDS FIXED IP ADDRESS 192.168.10.10
2. DSU LOCATION? THIS ASSUMES IT IS UNDER THE FRONT COUNTER AS TODAY
3. FC ASSIGNS DM IP ADDRESSES

WIRE LEGEND:	
---	CATS UTP
----	CATS UTP PATCH CORD
---	LEGACY SERIAL CONNECTIONS

- PP PIN PAD
EPS ELECTRONIC PAYMENT SYSTEM

- 2 CAT 5
1 CAT 5

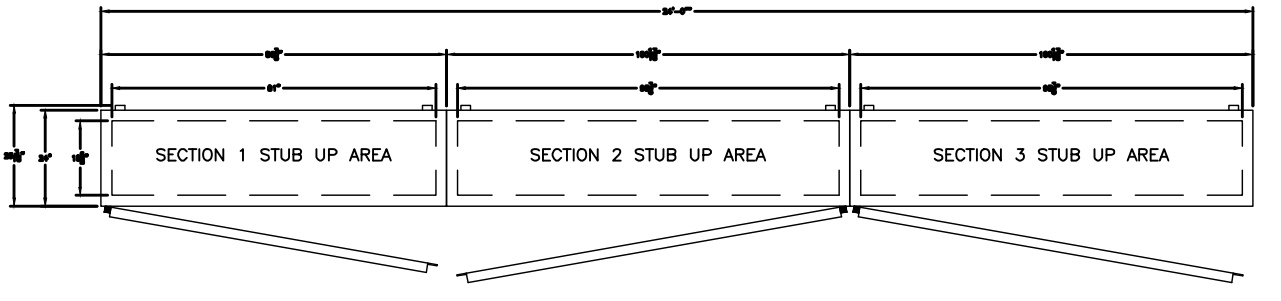
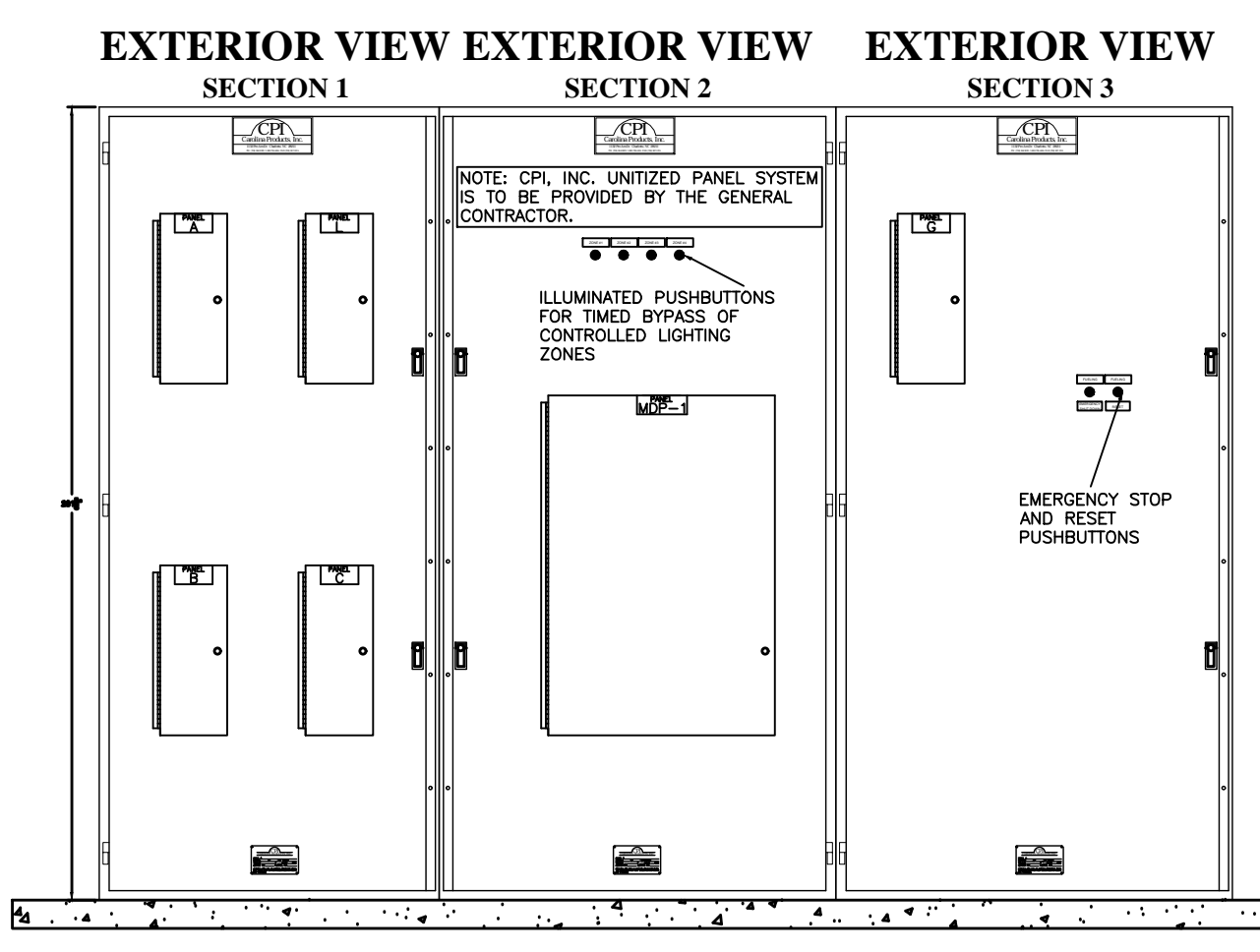
- ALLIED BOX
TANK LEVEL SENSOR



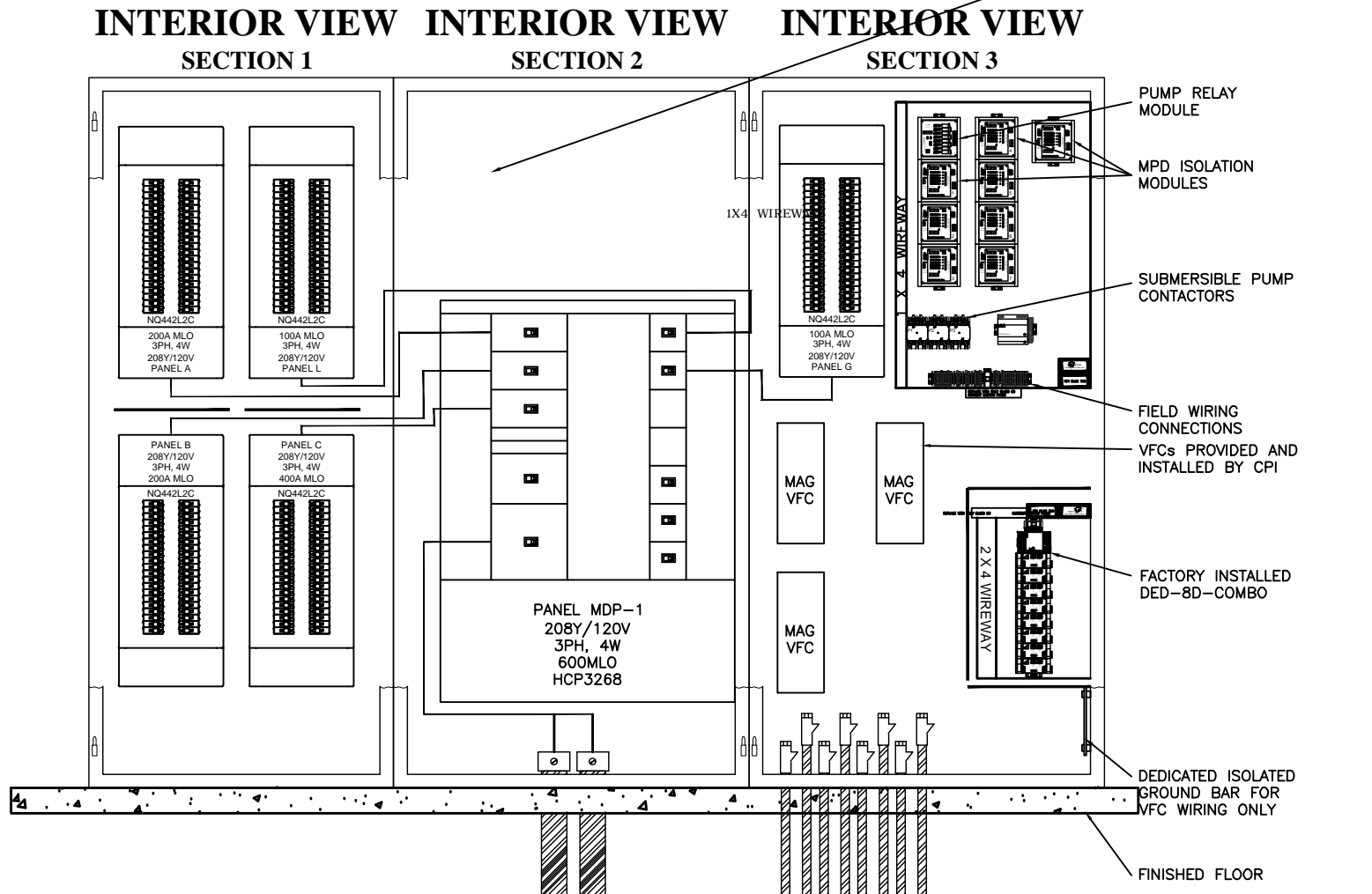
POS DIAGRAM

SCALE: N.T.S.

NEMA 1



NEMA 1



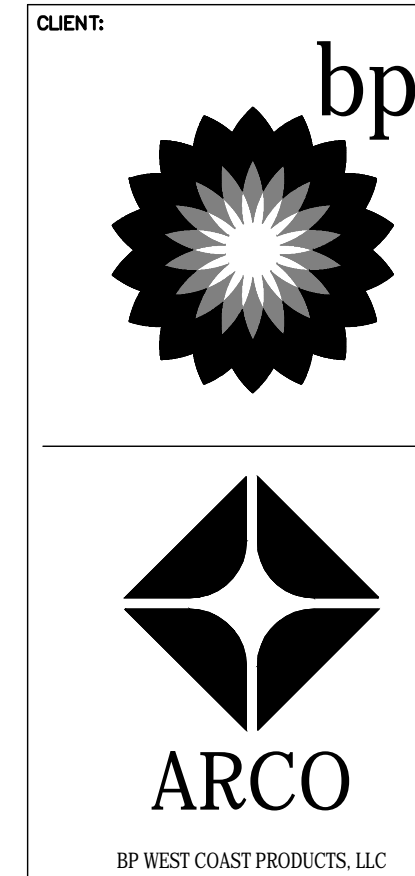
WIRE LEGEND:	
DASHED	FIELD
SOLID	FACTORY

ELEVATION DETAIL - UNITIZED PANEL SYSTEM

SCALE: N.T.S.

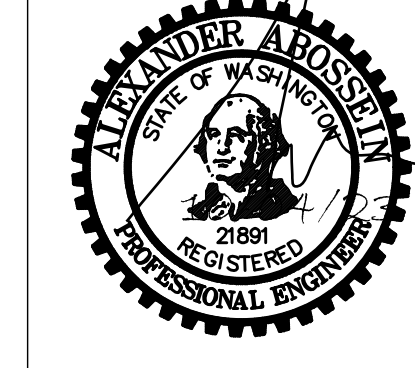
ABOSSEIN #223054

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DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADM:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

DRAWING TITLE:
DIAGRAM + DETAILS
- PART 2

SHEET NO:

E3.1

FAULT CURRENT SCHEDULE																											
DEVICE	FAULT	AIC RATING	L-N VOLTS	UTILITY			FED FROM				FEEDER						TRANSFORMER						TOTAL MOTOR FAULT	DIRECTLY CONNECTED MOTOR LOAD			
				FAULT	X	R	DEVICE	FAULT	X	R	SIZE	X / 1000'	R / 1000'	LENGTH	X	R	KVA	Z%	XR RATIO	FAULT AT PRIMARY	X	R		KVA	FAULT	X	R
UTILITY XFMR	47,444	50,000	120V	46,300	0.002541	0.0005083											300	1.8	5	UTILITY	0.002542	0.0005083	1,144				
MSB-2	31,406	65,000	120V	30,247	0.003648	0.00156	UTILITY XFMR	46,300	0.002541	0.0005083	(2)#350kcmil	0.02	0.019	55'	0.0011	0.0011							1,159				
MSB-1	28,699	65,000	120V	27,734	0.003911	0.00185	MSB-2	30,247	0.003648	0.00156	(2)#500kcmil AL	0.0195	0.0215	14'	0.0003	0.0003							965				
EV	27,800	42,000	120V	26,893	0.004028	0.001919	MSB-1	27,734	0.003911	0.00185	#600kcmil	0.039	0.023	3'	0.0001	0.0001							907				
MSB-3	28,889	65,000	120V	27,727	0.003912	0.001851	MSB-2	30,247	0.003648	0.00156	(2)#500kcmil AL	0.0195	0.0215	14'	0.0003	0.0003							1,162				
MSB-4	27,648	65,000	120V	26,484	0.004088	0.001954	MSB-3	27,727	0.003912	0.001851	(3)#600kcmil	0.013	0.0077	14'	0.0002	0.0001							1,164				
CW	14,829	42,000	120V	14,110	0.006035	0.005992	MSB-4	26,484	0.004088	0.001954	(2)#250kcmil AL	0.0205	0.0425	95'	0.0019	0.004							719	49.1	545	0.2135	0.05337
MDP-1	27,317	65,000	120V	26,173	0.004127	0.001997	MSB-4	26,484	0.004088	0.001954	(2)#500kcmil AL	0.0195	0.0215	2'	0	0							1,144				
A	26,029	42,000	120V	24,993	0.004253	0.002228	MDP-1	26,173	0.004127	0.001997	#3/0	0.042	0.077	3'	0.0001	0.0002							1,036				
B	26,032	42,000	120V	24,993	0.004253	0.002228	MDP-1	26,173	0.004127	0.001997	#3/0	0.042	0.077	3'	0.0001	0.0002							1,039	2.8	31	3.745	0.9362
C	26,527	42,000	120V	25,423	0.004244	0.002066	MDP-1	26,173	0.004127	0.001997	#600kcmil	0.039	0.023	3'	0.0001	0.0001							1,104	44.6	495	0.2351	0.05877
G	25,409	42,000	120V	24,404	0.004265	0.002447	MDP-1	26,173	0.004127	0.001997	#1	0.046	0.15	3'	0.0001	0.0005							1,005	8.1	90	1.294	0.3236
L	25,397	42,000	120V	24,404	0.004265	0.002447	MDP-1	26,173	0.004127	0.001997	#1	0.046	0.15	3'	0.0001	0.0005							993	0.936	10	11.2	2.801

ARC-FLASH SCHEDULE								
DEVICE	VOLTAGE	INCIDENT ENERGY (J/CM²)	ARCING CURRENT		ARCING TIME			ARC-FLASH BOUNDARY DISTANCE (MM)
			MAX	REDUCED	◎ MAX ARCING CURRENT (SECONDS)	BASIS	◎ REDUCED ARCING CURRENT (SECONDS)	
UTILITY XFMR	208V	45.53	16,147	13,911	0.2		0.3	18"
MSB-2	208V	35.59	13,095	11,282	0.2		0.3	18"
MSB-1	208V	33.21	12,308	10,604	0.2		0.3	18"
EV	208V	32.37	12,026	10,361	0.2		0.3	18"
MSB-3	208V	33.39	12,366	10,654	0.2		0.3	18"
MSB-4	208V	32.22	11,977	10,319	0.2		0.3	18"
CW	208V	17.67	6,863	5,913	0.2		0.3	18"
MDP-1	208V	31.91	11,870	10,227	0.2		0.3	18"
A	208V	30.64	11,440	9,856	0.2		0.3	18"
B	208V	30.64	11,441	9,857	0.2		0.3	18"
C	208V	31.13	11,609	10,002	0.2		0.3	18"
G	208V	30.01	11,226	9,672	0.2		0.3	18"
L	208V	30	11,222	9,668	0.2		0.3	18"


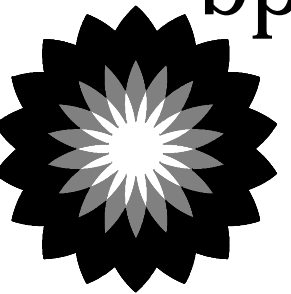
VOLTAGE DROP SCHEDULE						
DEVICE	FEEDER			BRANCH CIRCUIT	TOTAL VOLTAGE DROP	FEEDER
	VOLTAGE DROP	WIRE SIZE	LENGTH			
UTILITY XFMR	0%	#12	-	-	0%	0%
MSB-2	1.37%	(2)#350kcmil	55'	-	1.37%	1.37%
MSB-1	1.46%	(2)#500kcmil AL	14'	-	1.46%	0.09%
EV	1.49%	#600kcmil	3'	-	1.49%	0.03%
MSB-3	1.64%	(2)#500kcmil AL	14'	-	1.64%	0.27%
MSB-4	1.76%	(3)#600kcmil	14'	-	1.76%	0.13%
CW	3.08%	(2)#250kcmil AL	95'	1.59% (CKT 33)	4.67%	1.32%
MDP-1	1.79%	(2)#500kcmil AL	2'	-	1.79%	0.02%
A	1.81%	#3/0	3'	2.19% (CKT 13)	4%	0.02%
B	1.8%	#3/0	3'	2.84% (CKT 34)	4.64%	0.02%
C	1.81%	#600kcmil	3'	1.12% (CKT 24,26,28)	2.93%	0.02%
G	1.81%	#1	3'	2.24% (CKT 20)	4.05%	0.02%
L	1.8%	#1	3'	1.56% (CKT 24)	3.36%	0.02%

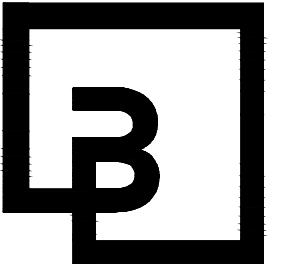
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






CLIENT:






**Barghausen
Consulting Engineers, Inc.**

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
			
			
			
			
			
			
			
			
			
			
			

SEAL:


DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY: ALLIANCE ZADAM
CHECKED BY: BP REPA
DRAWN BY: ALLIANCE PM
VERSION: PROJECT NO: 21730

DRAWING TITLE:
FAULT CURRENT
+ ARC FLASH
SCHEDULES

SHEET NO:

E4.0

1. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH POWER COMPANY FOR EXACT SERVICE CONNECTION REQUIREMENTS AND INCLUDE ALL NECESSARY COST IN BID.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE COMPANY FOR EXACT SERVICE CONNECTION REQUIREMENTS AND INCLUDE ALL NECESSARY COST IN BID.
3. ALL ELECTRICAL EQUIPMENT SHALL HAVE AIC RATINGS EQUIVALENT OR HIGHER THAN AVAILABLE FAULT CURRENTS PROVIDED BY POWER COMPANY.
4. A UTILITY LOCATE SHALL BE PERFORMED PRIOR TO COMMENCEMENT OF TRENCHING.
5. LIGHTING CONTACTOR (INTERIOR LIGHTING ONLY) IS LOCATED WITHIN CPI CABINET.
6. ALL LIGHTING FIXTURES TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
7. 'EM' AT LIGHT FIXTURE INDICATES LIGHT FIXTURE WITH EMERGENCY BACK UP. ALL EMERGENCY LIGHT FIXTURES SHALL BE SERVED FROM BATTERY BACKUP. EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED AND CIRCUITED PER THE LATEST CALIFORNIA ELECTRICAL CODE AND ALL LOCAL CODES (INSTALL A CENTRAL BATTERY SYSTEM WHERE THE USE OF INDIVIDUAL BATTERY UNITS ARE PROHIBITED BY LOCAL CODES). ALL EMERGENCY FIXTURES AND EXIT SIGNS SHALL BE CONNECTED TO UN-SWITCHED HOT LEG OF THE LOCAL LIGHTING CIRCUIT.
8. ALL EXTERIOR LIGHT FIXTURES TO BE CONTROLLED THROUGH THE ISI AIRLINK BLUE COMPLETE OUTDOOR LIGHTING WIRELESS MESH SYSTEM. AIRLINK BLUE SYSTEM INCLUDES DAYLIGHT SENSORS WITH DIMMING CONTROL AND CAPABLE OF PROVIDING CONTINUOUS DIMMING THROUGH A 50%-90% RANGE PER 2018 WSEC REQUIREMENTS. AIRLINK BLUE SYSTEM TO INCLUDE ASTRONOMICAL CLOCK AND TIME KEEPER AIRLINK BLUE COMPONENT FOR SCHEDULING CONTROLS SET PER 2018 WSEC REQUIREMENTS. ALL EXTERIOR LUMINAIRES TO INCLUDE FACTORY INTEGRATED BLUETOOTH RADIO/SENSOR CONTROLLERS. AIRLINK BLUE SYSTEM TO BE INITIALIZED VIA WEB APP AND FIELD COMMISSIONED VIA MOBILE APP TO THE OWNER'S REQUIREMENTS. ANY CHANGES OR UPDATES TO BE ACCOMPLISHED ON SITE VIA MOBILE APP.

- (1) PROVIDE NEW LIGHT FIXTURE. INSTALL 3/4" PVC UNDERGROUND CONDUIT CONTAINING: (2) #10 THWN CU. AND (1) #10 CU EGC. FOR PARKING LOT LIGHTING. EXTEND CONDUIT BACK TO AIRLINK BLUE CONTROLS.
- (2) PROVIDE AND INSTALL ESO SWITCH. INCLUDE ALL ASSOCIATED CONDUIT AND WIRE FOR COMPLETE INSTALLATION PER CEC 514.11 AND NFPA 30A SECTION 6.7. RUN WIRE IN 1" PVC-COATED RGS CONDUIT AND STUB UP WITH RGS. SEE DETAIL 3/E2.3. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION. SEE DETAIL IN TANK DRAWINGS FOR ELEVATION.
- (3) PROVIDE AND INSTALL ESO SWITCH. COORDINATE EXACT LOCATION(S) WITH OWNER PRIOR TO INSTALLATION.
- (4) PROVIDE 3/4" PVC UNDERGROUND CONDUIT AND (3) #10 THHN CU. WIRE (U.O.N.) FOR NEW AIR STATION. MAKE CONNECTION WITH WATER TIGHT FLEX, BOXES AND COVERS AS REQUIRED BY MANUFACTURER. FIELD VERIFY EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- (5) PROVIDE (1) 3" PVC CONDUIT WITH 1/4" PULL STRING FOR TELEPHONE. FIELD VERIFY EXACT VAULT LOCATION WITH SERVICE PROVIDER PRIOR TO INSTALLATION.
- (6) PROVIDE (1) 1-1/2" CONDUIT FOR INSTALLATION OF ELECTRIC VEHICLE CHARGING STATION. 100A 208 VOLT 3Ø MIN. CAP AND MARK CONDUIT AS REQUIRED FOR ACCESS.
- (7) PROVIDE (2) 1" PVC-COATED RGS SPARE UNDERGROUND CONDUITS TO FOR FUTURE VENT DIAGNOSTICS TO INTRINSICALLY SAFE AND POWER WIREWAYS-INSIDE STORE (NEXT TO EPC CABINET).
- (8) ALL SITE LIGHT POLE FIXTURES TO INCLUDE LSI AIRLINK BLUE LIGHTING SYSTEM MOTION DETECTOR MOUNTED ON LIGHT POLE. UPON ACTIVATION OF EITHER MOTION DETECTOR, ALL SITE POLE LIGHTS TO TRIGGER AT FULL BRIGHTNESS AND RETURN TO 50% BRIGHTNESS AFTER 15 MINUTES OF VACANCY.
- (9) 60W HEAT TRACER LOCATED IN RPBA HOT BOX, REFER TO CIVIL UTILITY PLANS FOR EXACT LOCATION.
- (10) PROPOSED SOLAR ZONE PER 2018 WSEC REQUIREMENTS.
- (11) PROVIDE (1) 3/4" CONDUIT AND CONTROL WIRE TO CLOSEST EMERGENCY STOP BUTTON FOR CONNECTION TO VEHICLE CHARGING STATION.
- (12) PROPOSED UTILITY TRANSFORMER EXACT LOCATION TO BE VERIFIED.

A TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (UNDERGROUND TANK - FILL OPENING)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
Any pit, box, or space below grade level, any part of which is within the Division 1 or 2 classified location.

EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
Up to 18 inches above grade level within a horizontal radius of 10 feet from a loose fill connection and within a horizontal radius of 5 feet from a tight fill connection.



B TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (UNDERGROUND TANK VENT DISCHARGING UPWARD)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
Within 3 feet of open end of vent, extending in all directions.

EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
Space between 3 feet and 5 feet of open end of vent, extending in all directions.

C TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (REMOTE PUMP - OUTDOOR)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
Any pit, box, or space below grade level if any part is within a horizontal distance of 10 feet from any edge of pump.

EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
Within 3 feet of any edge of pump, extending in all directions. Also up to 18 inches above grade level within 10 feet horizontally from any edge of pump.



SITE LUMINAIRE SCHEDULE												
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT VA	TOTAL VA	LUMENS / LAMP	VOLTS	NOTES	QUANTITY
S1		(1) 31.59W LED	SURFACE MOUNTED STRIP LIGHT	0-10V DIMMABLE	SURFACE	LSI EG3-4-LED-4L-DA-S-UNV-DIM-50-80	31.59	31.59	4508	120V 1P 2W	TRASH/RECYCLE ROOM W/ EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION, 4508 LUMENS, 143.42 LUMENS/WATT	2
S2		(1) 63W LED	LED POLE LIGHT	ELECTRONIC	POLE	LSI SLM-LED-09L-SIL-FT-50-70CRI-SINGLE-16"POLE+2"BASE	63	63	9657	208V 2P 2W	PARKING LOT, INCLUDE LSI AIRLINK BLUE SENSOR.	6

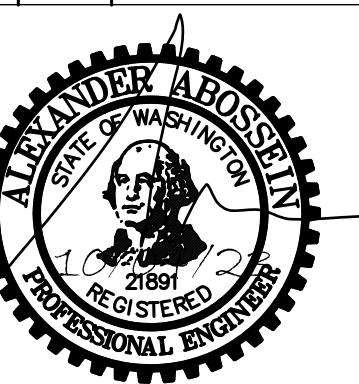


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**MECHANICAL – ELECTRICAL
CIVIL – LEED
FIRE PROTECTION**
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REDMOND, WA 98052
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FAX: (425) 462-9451
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NO.	DATE	REVISION DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
UEL CANOPY w/ 6 MPD's

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
REVISION:	PROJECT NO: 21730

DRAWING TITLE:

ELECTRICAL SITE PLAN

SHEET NO: _____

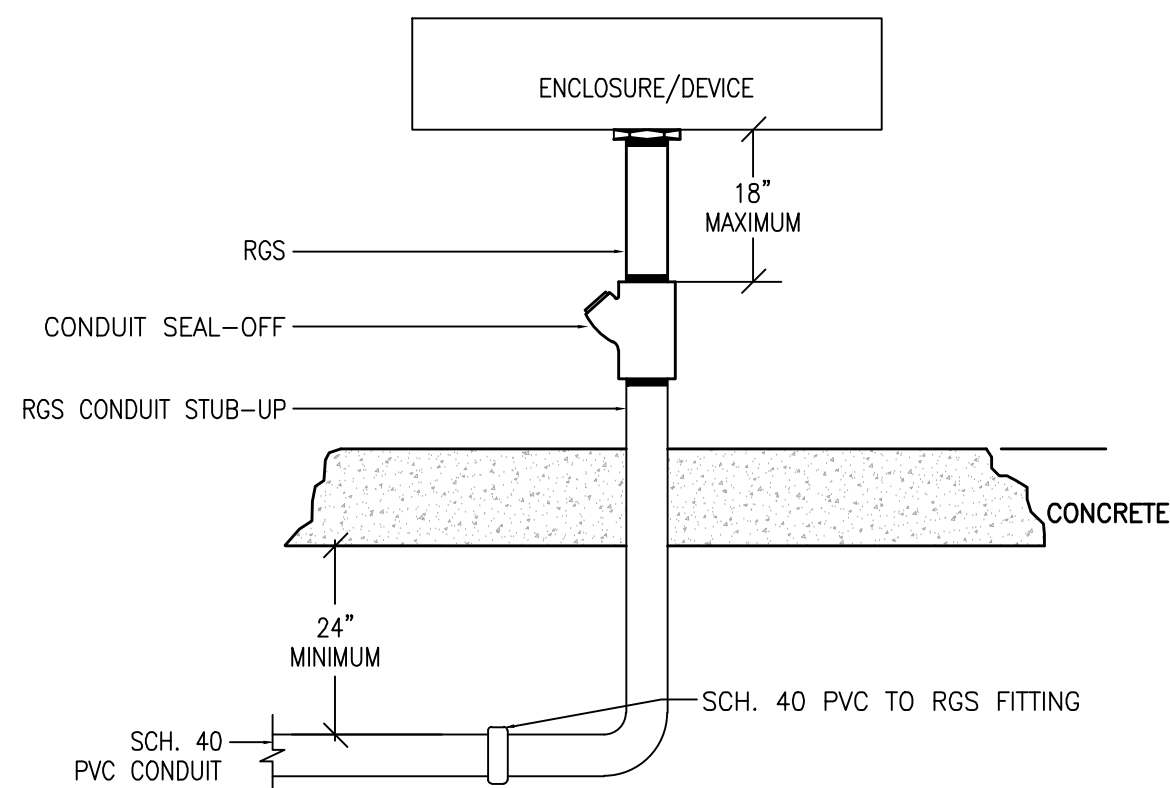
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1. ALL EXTERIOR LIGHTING TO BE CONTROLLED BY LSI AIRLINK BLUE WIRELESS BLUETOOTH MESH OUTDOOR LIGHTING CONTROL SYSTEM. REFER TO LSI AIRLINK BLUE SPECIFICATION SHEETS FOR EXACT INFORMATION ON SYSTEM.
2. REFER TO TANK ELECTRICAL DRAWINGS FOR FUELING CONTROL FILL AND WIRE TYPES.
3. SEE TANK ELECTRICAL DRAWINGS FOR FURTHER REQUIREMENTS.
4. ALL LIGHTING FIXTURES TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
5. ALL EXTERIOR LIGHT FIXTURES TO BE CONTROLLED THROUGH THE LSI AIRLINK BLUE COMPLETE OUTDOOR LIGHTING WIRELESS MESH SYSTEM. AIRLINK BLUE SYSTEM INCLUDES DAYLIGHT AND MOTION SENSORS WITH DIMMING CONTROL CAPABLE OF AUTOMATICALLY SHUTTING OFF OUTDOOR LIGHTING WHEN DAYLIGHT IS AVAILABLE, EMPLOY AUTO FUNCTIONALITY WITH AREA BEAM AND IS CAPABLE OF PROVIDING CONTINUOUS DIMMING THROUGH A 50%-90% RANGE PER 2018 WSEC REQUIREMENTS. AIRLINK BLUE SYSTEM TO INCLUDE ASTRONOMICAL CLOCK AND TIME KEEPER AIRLINK BLUE COMPONENT FOR SCHEDULING CONTROLS SET PER 2018 WSEC REQUIREMENTS. ALL EXTERIOR LUMINAIRES TO INCLUDE FACTORY INTEGRATED BLUETOOTH RADIO/SENSOR CONTROLLERS. AIRLINK BLUE SYSTEM TO BE INITIALIZED VIA WEB APP AND FIELD COMMISSIONED VIA MOBILE APP TO THE OWNER'S REQUIREMENTS. ANY CHANGES OR UPDATES TO BE ACCOMPLISHED ON SITE VIA MOBILE APP.

- ① PROVIDE (6) 1" PVC-COATED RGS UNDERGROUND CONDUITS TO LEAK DETECTION PANEL.
 - (3) 1" CONDUITS FOR TURBINE POWER
 - (3) 1" INTRINSICALLY SAFE CONDUITS FOR TANK MONITORING
- ② PROVIDE (3) 1" PVC-COATED RGS UNDERGROUND CONDUITS FOR MUSAK AND SECURITY SYSTEMS. STUB IN COLUMN AND EXTEND CONDUITS BACK TO MUSAK AND SECURITY SYSTEMS LOCATED PER ARCO REPRESENTATIVE. ALL CONDUIT STUB-UPS SHALL BE RGS WITH SEAL OFFS AND MEET THE REQUIREMENTS SPECIFIED IN ARTICLE 514 OF THE NEC. FIELD VERIFY EXACT LOCATIONS.
 - (2) 1" CONDUITS FOR MUSAK AND CAMERA WITH PULL ROPE
 - (1) 1" CONDUIT FOR MUSAK LOOP TO EACH COLUMN
- ③ PROVIDE (3) 1" PVC-COATED RGS UNDERGROUND CONDUITS FOR FUEL DISPENSER. ALL CONDUIT TO STUB-UP SHALL BE RGS WITH SEAL OFFS AND MEET THE REQUIREMENTS SPECIFIED IN ARTICLE 514 OF THE NEC. FIELD VERIFY EXACT LOCATION OF STUB-UPS. FIELD WRAP STEEL CONDUIT WITH A 100 MIL. COATING OF COAL TAR EPOXY.
 - (1) 1" CONDUIT FOR POWER & DATA
 - (1) 1" CONDUIT FOR MONITORING
 - (1) 1" CONDUIT FOR INTERCOM
- ④ PROVIDE (1) 3/4" PVC-COATED RGS UNDERGROUND CONDUITS FOR CANOPY LIGHTING AND SIGNS. ALL CONDUIT TO STUB-UP SHALL BE RGS WITH SEAL OFFS AND MEET THE REQUIREMENTS SPECIFIED IN ARTICLE 514 OF THE NEC. FIELD VERIFY EXACT LOCATIONS. EXTEND CONDUIT BACK TO LIGHTING CONTACTOR AND ASTRONOMIC TIME CLOCK. USE #10 CONDUCTORS FOR CANOPY LIGHTING AND SIGNS CIRCUITS.

1 CANON

SCALE: 1/8" = 1'-0"



SCALE: NTS

SCALE: 1/8" = 1'-0"

ES1.1

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WATER HAMMER ARRESTER SCHEDULE				
MARK	MANUFACTURER/ MODEL #	FIXTURE UNITS	INLET SIZE	REMARKS
WHA-A	PPP SC-500	1-11	1/2"	PER PDI STANDARD PDI-WH 201
WHA-B	PPP SC-750	12-32	3/4"	PER PDI STANDARD PDI-WH 201
WHA-C	PPP SC-1000	33-60	1"	PER PDI STANDARD PDI-WH 201

ELECTRIC WATER HEATER SIZING				
FIXT. ID	QTY	DESCRIPTION	DEMAND	TOTAL
LV-1	2	LAVATORY	5 GPH	10 GPH
G16A	1	HANDSINK	5 GPH	5 GPH
G7	1	MOP SINK	15 GPH	15 GPH
G9B	1	3-COMPARTMENT SINK	45 GPH	45 GPH
SUBTOTAL =			75 GPH	
DEMAND FACTOR: 0.8 HOT WATER DEMAND: 0.8 X 75 GPH = 60 GPH ENERGY INPUT CALCULATIONS: 60 GPH X 0.149 = 8.94 KW MODEL RECOVERY RATE A.O. SMITH, DRE-52-12 74 GPH @ 100°F ELECTRICAL INPUT TEMPERATURE RISE STORAGE CAPACITY 12 KW 50 GALLONS				

DOMESTIC HOT WATER CIRCULATING PUMP SCHEDULE	
DESIGNATION:	HWCP-1
ZONE:	BUILDING
MANUFACTURER:	GRUNDFOS
MODEL:	UP15-18B7
TYPE:	INLINE
G.P.M.:	3
HEAD (FT-H2O):	12
RPM:	2940
MOTOR FLA:	0.74
VOLTAGE:	115
PHASE:	1
WEIGHT (LBS):	6.7
REMARKS:	(1)(2)(3)
(1) ALL BRONZE PUMP, 125 PSI MIN. RATED.	
(2) WITH 1" FLANGE CONNECTION.	
(3) COORD. WITH ELEC'L CONTRACTOR FOR POWER TO PUMP.	

GREASE INTECEPTOR SIZING			
QTY	DESCRIPTION	WASTE F.U.PER FIXTURE	PIPING TOTAL SS F.U.
1	MOP SINK	3	3
1	3-COMP SINK	3	3
1	HAND SINK	2	2
1	FLOOR DRAIN	2	2
7	FLOOR SINK	2	14
TOTAL			26
UPC TABLE 10-3 GRAVITY GREASE INTERCEPTOR SIZING			
DFU'S	INTERCEPTOR VOLUME		
8	500 GALLONS		
21	750 GALLONS		
35	1000 GALLONS		
90	1250 GALLONS		

PLUMBING FIXTURE SCHEDULE								
FIXT. ID	DESCRIPTION	MANUFACTURER	MODEL	ROUGH-IN		CW	HW	REMARKS
				W	V			
WC-1	WATER CLOSET(F.T.)	AMERICAN STANDARD	CHAMPION PRO 3195A.101	4"	2"	1/2"	-	ADA COMFORT HEIGHT, TWO-PEICE TANK TYPE TOILET, VITREOUS CHINA, ELONGATED BOWL, WHITE # 4225A.164 TANK, 1.25 GPF, WITH AMERICAN STANDARD 5901.100SS WHITE OPEN FRONT SEAT LESS COVER.
LV-1	LAVATORY	AMERICAN STANDARD	LUCERNE 0355.012.020	2"	1-1/2"	1/2"	1/2"	WALL MOUNTED, WHITE VITREOUS CHINA, 3 FAUCET HOLES, CONCEALED ARMS SUPPORT, AMERICAN STANDARD 6053.205.V035 SENSOR FAUCET SET FOR MAXIMUM 0.2 GALLONS PER CYCLE. PROVIDE UNDER DECK THERMOSTATIC MIXING VALVE; AND FLAT GRID DRAIN, WITH TRUEBRO LAVGUARD 102
A1C	CAPPUCCINO MACH	CURTIS	G3 PRIMO PCGT63099	-	-	1/2"	-	SEE ARCHITECTURAL PLANS
A33	BEAN-TO-CUP	SCHAEERER	040381-00051EUS	1-1/2"	-	1/2"	-	SEE ARCHITECTURAL PLANS
B1B	FROZEN BEVERAGE DISPENSER	CORNELIUS	621460041 VIPER SHORT	-	-	1/2"	-	SEE ARCHITECTURAL PLANS
B2A	FOUNTAIN TOP ICE MAKER (CUBED)	HOSHIZAKI	KMD-860MRJ	1/4"	-	1/2"	-	SEE ARCHITECTURAL PLANS
B2B	FOUNTAIN TOP ICE MAKER (NUGGET)	SCOTSMAN	NO922R-32	3/4"	-	1/2"	-	SEE ARCHITECTURAL PLANS
B12A	INTERACTIVE DRINK DISPENSER	CORNELIUS	621058578, IDC PRO	3/4"	-	1/2"	-	SEE ARCHITECTURAL PLANS
B15	F'REAL BLENDER	F'REAL	FRLB6	3/4"	-	1/2"	-	SEE ARCHITECTURAL PLANS
D10	WALK-IN COOLER EVAPORATOR COIL	HEATCRAFT	LEC0130AS7 AMAB0200	3/4"	-	-	-	SEE ARCHITECTURAL PLANS
D11	WALK-IN FREEZER EVAPORATOR COIL	HEATCRAFT	LEC0120BS6 EMAB0200	3/4"	-	-	-	SEE ARCHITECTURAL PLANS
G6A	ICE MAKER	SCOTSMAN	ERC311-32A	3/4"	-	1/2"	-	SEE ARCHITECTURAL PLANS
G7	MOP SINK	FIAT	MSB-3624	3"	2"	1/2"	1/2"	24"X 36" X 10", SHIPPING WEIGHT 50LBS. PROVIDE WIHT FIAT # 830-AA FAUCET
G8	ELECTRIC WATER HEATER	A.O.SMITH	DRE-52-12	3/4"ID	-	3/4"	3/4"	COMMERCIAL ELECTRIC WATER HEATER, ELECTRIC INPUT 18KW, 3PH, 50A. RECOVERY RATE 74 @ 100°F TEMPERATURE RISE, STORAGE CAPACITY 50 GALLONS. WATER HEATER SHALL HAVE A MINIMUM EFFICIENCY OF 0.93
G9B	3-COMPARTMENT SINK	ADVANCE TABCO	FC-3-1824-18RL	3"	2"	1/2"	1/2"	18"X24" STAINLESS STEEL. WITH G9E FAUCET FISHER # 2210 RATED FOR 1.15 GPM @ 60 PSI
G11	WATER PURICIFATION SYSTEM	EVERPURE	EV9437-10	-	-	1"	-	SEE ARCHITECTURAL PLANS
G16A	HANDSINK	ADVANCE TABCO	7-PS-41	2"	1-1/2"	1/2"	1/2"	OVERALL SINK DIMENSION IS 20"x24", BOWL IS 14"x16" STAINLESS STEEL. WELDED 7'-3/4" HIGH SIDE SPLASHES. 2.2 GPM
G54	CARBONATOR	McCANN'S	"BIG MAC" E400397	-	-	1/2"	-	SEE ARCHITECTURAL PLANS
TG10B	MED. CONDIMENT ISLAND	SHOPCO	-	1"	-	1/2"	-	SEE ARCHITECTURAL PLANS
FD-1	FLOOR DRAIN	ZURN	Z-415S	2"	1-1/2"	-	-	6"x6" SQUARE STRAINER, WITH 1/2" TRAP PRIMER. CONNECTION OR APPROVED EQUAL.
FS-1	FLOOR SINK	ZURN	Z-1901	3"	2"	-	-	12" X 12" RECEPTOR 8" SUMP DEPTH. OR APPROVED EQUAL.
FS-2	FLOOR SINK	ZURN	Z-1901	2"	2"	-	-	12" X 12" RECEPTOR 8" SUMP DEPTH. OR APPROVED EQUAL.
ET-1	EXPANSION TANK	AMTROL	ST-5	-	-	1/2"	-	MODEL ST-5, 2.0 GALLONS, STEEL SHELL, POLYPROPYLENE LINER, BUTYL DIAPHRAGM, FACTORY PRECHARGE AT 40 PSIG, MAXIMUM OPERATING TEMPERATURE = 200°F, MAXIMUM WORKING PRESSURE = 150 PSIG.
HWCP-1	HOT WATER RETURN CIRCULATING PUMP	GRUNDFOS	UP15-18B7	-	-	-	3/4"	3 GPM @ 12 FT.HD, 115V/1PH/60Hz, 1/25HP, 25 WATTS; WITH TIME CLOCK AND AQUASTAT. COORDINATE WITH OWNER FOR TIMER SETTINGS. MOUNT PUMP 5FT ABOVE FINISHED FLOOR.
MV-1	THERMOSTATIC MIXING VALVE	WATTS	LFMMV-M1	-	-	3/4"	3/4"	POINT-OF-USE MIXING VALVE, BRONZE BODY CONSTRUCTION. SET OUTLET TEMPERATURE AT 105°F.
TP-1	TRAP PRIMING VALVE	PPP	PR-500	-	-	1/2"	-	PRESSURE DROP ACTIVATED TRAP PRIMER.
WCO-1	FLOOR CLEAN OUT	ZURN	Z1443-ZB	VRY	-	-	-	WALL CLEANOUT, DURA - COATED CAST IRON BODY, GAS AND WATERTIGHT ABS TAPERED THREAD PLUG, AND NICKEL BRONZE SECURED SQUARE, SMOOTH WALL ACCESS COVER AND FRAME. OR APPROVED EQUAL.
FCO-1	FLOOR CLEAN OUT	ZURN	Z1440-ZB	VRY	-	-	-	"LEVEL-TROL" ADJUSTABLE FLOOR CLEANOUT, DURA-COATED CAST IRON BODY WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLUG AND ROUND SCORIATED CAST IRON EXTRA-HEAVY-DUTY SECURED TOP ZB, ADJUSTABLE TO FINISHED FLOOR, OR APPROVED EQUAL.
COTG-1	CLEANOUT TO GRADE	ZURN	Z1474	4"	-	-	-	HEAVY DUTY CLEANOUT HOUSING, DURA-COATED CAST IRON BODY WITH INTEGRAL ANCHOR FLANGE, SECURED SCORIATED COVER WITH LIFTING DEVICE. W/ Z1400, OR APPROVED EQUAL.
WHA-1	WATER HAMMER ARRESTOR	ZURN	Z170	-	-	3/4"	-	SHOKTROL WATER HAMMER ARRESTOR, STAINLESS STEEL CONSTRUCTION. OR APPROVED EQUAL.
RD-1	ROOF/OVERFLOW DRAIN	ZURN	Z165-NH, Z-0-SS, -VP-SC-E	3"	-	-	-	Ø8-3/8 COMBINATION MAIN ROOF &OVERFLOW DRAIN W/ LOW SILHOUETTE DOMES DOUBLE TOP-SET@DECK PLATE. OUTLET NO-HUB, PIPE SIZE 4"Ø, BODY WITH DOME 4-1/2" DOME HEIGHT, GALVANIZED CAST IRON, STAINLESS STEEL MESH SCREEN OVER DOME, SECONDARY CLAMPING COLLAR W/ STATIC EXTENSION. VANDAL PROOF SECURED TOP. OR APPROVED EQUAL.
OD-1	OVERFLOW DRAIN	ZURN	Z198-G	3"	-	-	-	PARAPET SCUPPER SLEEVE, DURA-COATED CAST IRON BODY WITH FIXED POSITION COMBINATION MEMBRANE FLASHING FLANGE AND CLAMP AND PARAPET WALL FACE CLOSING, GALVANIZED CAST IRON. OR APPROVED EQUAL.
HB-1	HOSE BIB	ACORN	8151		-	3/4"	-	WITH ANTI-SIPHON VACUUM BREAKER. INTEGRAL STOP, LOCKING DOOR, S.S. BOX MOUNT HOSE BIBB. MOUNT 24" ABOVE GRADE.
HB-2	HOSE BIB	ACORN	8121 LF		-	3/4"	-	WITH VACUUM BREAKER, MOUNT HOSE BIBB 12" ABOVE FINISHED FLOOR
HB-3	POST HYDRANT	WOODFORD	SRH-MS		-	3/4"	-	WITH DUAL CHECK SPOUT, 3/4" HOSE CONNECTION AND GALVANIZED STEEL STANDPIPE WITHOUT DRAIN OUTLET.
NOTE: PLUMBING CONTRACTOR TO VERIFY ALL EQUIPMENT CONNECTION SIZES AND PROVIDE ALL REDUCERS, INGREASER, AND ADAPTORS AS REQUIRED.								

PLUMBING LEGEND		
SYMBOL	ABBREVIATION	DESCRIPTION
-----	CW	COLD WATER PIPING
-----FCW-----	FCW	FILTERED COLD WATER PIPING
-----	HW	HOT WATER PIPING (140°F)
-----	HWR	HOT WATER RETURN PIPING
-----	SS OR W	SOIL OR WASTE PIPING BELOW GRADE
-----	SS OR W	SOIL OR WASTE PIPING ABOVE GRADE
-----GW-----	GW	GREASE WASTE BELOW GRADE
-----	V	VENT PIPING
-----CD-----	CD	CONDENSATE DRAIN PIPING
-----D-----	ID	INDIRECT DRAIN PIPING
-----	WHA	WATER HAMMER ARRESTOR
-----	P.O.C.	POINT-OF-CONNECTION
-----		GAS COCK WITH UNION
-----		CAPPED
-----		UNION
-----O-----	UP	PIPE UP
-----D-----	DN	PIPE DOWN
-----S-----	DN	PIPE TEE DOWN
-----	BV	BALL VALVE
-----	CV	CHECK VALVE
-----	RED	REDUCER
-----	PUMP	
-----	FCO/GCO	FLOOR CLEANOUT OR GRADE CLEANOUT
-----	WCO	WALL CLEANOUT
-----	AFF	ABOVE FINISHED FLOOR
-----	BFF	BELOW FINISHED FLOOR
-----	BG	BELOW GROUND
-----	(E)	EXISTING
-----	(N)	NEW
-----	NTS	NOT TO SCALE
-----	IE	INVERT ELEVATION
-----	QTY.	QUANTITY
-----	V.I.F.	VERIFY IN FIELD
-----	FU	FIXTURE UNIT
-----	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER

MATERIAL SPECIFICATIONS									
SERVICES		CAST IRON NO-HUB	GALV STEEL SCH 40	BLACK STEEL SCH 40	TYPE M COPPER	TYPE L COPPER	TYPE K COPPER	REMARKS	
COLD WATER	ABOVE GROUND								
	BELOW GROUND								
HOT WATER	ABOVE GROUND								
	BELOW GROUND								
WASTE	ABOVE GROUND	•							
	BELOW GROUND	•							
VENT	ABOVE GROUND	•							
	BELOW GROUND	•							
INDIRECT WASTE	INDOOR				•				
	OUTDOOR				•				
NATURAL GAS	INDOOR		•	•				PAINTED WITH RUST INHIBITING PAINT	
	OUTDOOR		•						
STORM DRAIN	ABOVE GROUND	•							
	BELOW GROUND	•							
C02	ABOVE GROUND					•		SILVER BRAZED; NITROGEN PURGED	
C02 VENT	ABOVE GROUND					•		SILVER BRAZED; NITROGEN PURGED	
CONDENSATE PIPE	ABOVE GROUND				•				


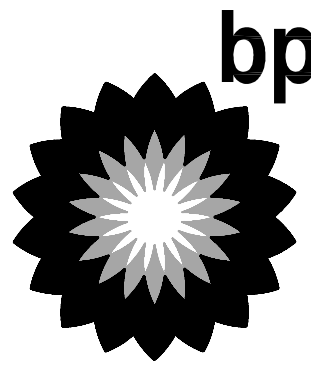
DRAWING SCHEDULE	
SHT. NO.	DESCRIPTION
P0.1	PLUMBING LEGEND, SCHEDULES & CALCULATIONS
P0.2	GENERAL NOTES & CALCULATIONS
P0.3	PLUMBING SPECIFICATIONS
P1.0	PLUMBING ROUGH-IN PLAN
P1.1	SANITARY DRAINAGE & VENT PLUMBING PLAN
P1.2	DOMESTIC WATER SUPPLY PLUMBING PLAN
P1.3	PLUMBING ROOF PLAN
P2.0	RISER DIAGRAMS
P3.0	CARWASH WASTE AND VENT PLANS
P3.1	CARWASH WATER AND ROOF PLAN
P3.2	CARWASH RISER DIAGRAMS
P4.0	PLUMBING DETAILS - I
P4.1	PLUMBING DETAILS - II
P4.2	PLUMBING DETAILS - III

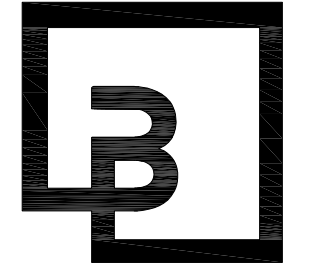
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
















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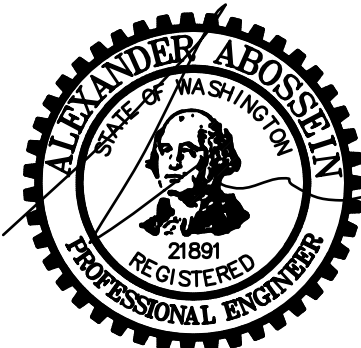
CLIENT:


BP WEST COAST PRODUCTS, LLC


Barghausen
Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION	DESCRIPTION
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			

SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY: ALLIANCE TADM:
CHECKED BY: BP REPA:
DRAWN BY: ALLIANCE PM:
VERSION: PROJECT NO: 21730

DRAWING TITLE:

PLUMBING LEGEND,
SCHEDULES &
CALCULATIONS

SHEET NO:

P0.1

PIPE SIZING INFORMATION

City main (source) water pressure	55.0 psi	<== Information provided by: Puyallup 253-841-5512	
Water meter loss (psi)	3.0 psi	Dept.	
Backflow preventer loss	10.0 psi		
Pressure losses between meter and bldg. (psi)	0.0 psi	Explanation: losses to bldg.	
Water pressure at building entry:	42.0 psi	If water pressure exceeds 80PSI, pressure regulator is req'd	

Maximum available water pressure for distribution:	42.0 psi	Regulator Required:	no
		PRV Set Point:	n/a

BUILDING WATER PRESSURE LOSS:

Elevation loss	4.3 psi	Max. fixture height from source:	10 ft at 0.433 psi/ft
Backflow preventer loss		psi (include all devices downstream of PRV)	
Min. fixture pressure	30.0 psi (at most remote fixture)		
Total pressure loss	34.3 psi		
	42.0 psi	(maximum available water pressure for distribution)	
	-34.3 psi	(minus total pressure loss)	
Remaining available pressure:	7.7 psi		
Longest piping run	150 ft	7.7 psi	x 100 ft
x add'l fitting factor of 1.33	200 ft	200 ft	

Max. allowable pressure loss for pipe sizing	3.845 psi/100ft
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COLD WATER PIPE SIZING TABLE

PIPE SIZE	FIX. UNITS (flush tank)	FIX. UNITS (flush valve)	Flow Rate (gpm)	Velocity (ft/s)
1/2"	1	-	2.4	3.2
3/4"	7	-	6.1	4.0
1"	18	-	13	4.7
1-1/4"	32	-	21	5.3
1-1/2"	60	16	33	5.9
2"	215	102	68	7.0
2-1/2"	479	365	120	8.0
3"	748	700	171	8.0
4"	1755	1755	300	8.0
6"	4480	4480	670	8.0

HOT WATER PIPE SIZING TABLE

PIPE SIZE	FIX. UNITS (flush tank)	Flow Rate (gpm)	Velocity (ft/s)
1/2"	1	2.5	3.4
3/4"	7	6.5	4.2
1"	18	13	5.0
1-1/4"	30	20	5.0
1-1/2"	49	28	5.0
2"	123	49	5.0
2-1/2"	245	75	5.0
3"	406	107	5.0
4"	840	187	5.0
6"	2765	419	5.0

FIXTURE UNITS CALCULATIONS							
FIXT. ID (ITEM)	QTY	DESCRIPTION	WATER PIPING			WASTE PIPING	
			F.U.PER FIXTURE	TOTAL CW F.U.	TOTAL HW F.U.	F.U.PER FIXTURE	TOTAL SS F.U.
PLUMBING FIXTURES							
WC-1	2	WATER CLOSET (FLUSH TANK)	2.5	5	—	4	8
LV-1	2	LAVATORY	1	1.5	1.5	1	2
A1C	1	CAPPUCCINO MACHINE	0.5	1	—	0.5	1
A33	3	BEAN-TO-CUP	0.5	1.5	—	0.5	1.5
B1B	1	FROZEN BEVERAGE DISPENSER	0.5	0.5	—	—	—
B2A	1	FOUNTAIN ICE MAKER (CUBED)	0.5	0.5	—	0.5	0.5
B2B	1	FOUNTAIN ICE MAKER (NUGGET)	0.5	0.5	—	0.5	0.5
B12A	2	INTERACTIVE DRINK DISPENSER	1	2	—	0.5	1.0
B15	1	F'REAL BLENDER	1	0.5	—	0.5	0.5
G7	1	MOP SINK	3	2.25	2.25	3	3
G6A	1	ICE MAKER	1	1	—	1	1
G9B	1	3-COMPARTMET SINK	—	—	—	6	6
G9E	1	3-COMP. SINK PRE-RINSE FAUCET	3	2.25	2.25	—	—
G16A	1	HAND SINK	2	3.0	3.0	2	2
G54	1	CARBONATOR	1	1	—	—	—
TG10B	1	MEDIUM REFRIGERATED CONDIMENT	—	—	—	2	2
FD-1	3	FLOOR DRAIN	—	—	—	2	6
FS-1	1	FLOOR SINK	—	—	—	9	9
FS-2	6	FLOOR SINK	—	—	—	2	12
HB-1	2	HOSE BIBB	2.5	5	—	—	—
HB-2	2	HOSE BIBB	2.5	5.0	—	—	—
HB-3	1	HOSE BIBB	2.5	2.5	—	—	—
		TOTAL		30.75	9.00		58.0
NOTES: 1. WATER SUPPLY FIXTURE UNITS ARE BASED ON CPC, APPENDIX A. 2. DRAINAGE FIXTURE UNITS ARE BASED ON CPC, CHAPTER-7 TABLE 7-3.							

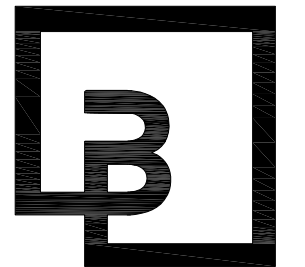
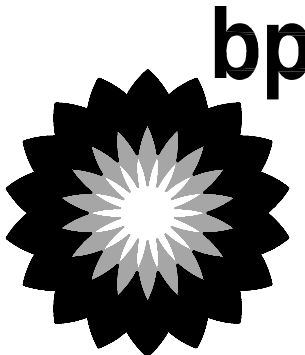
BACKFLOW PREVENTER NOTES

- AS MANUFACTURED BY "WATTS" OR EQUAL:
RPBA = REDUCED PRESSURE #009QT
DCVA = DOUBLE CHECK #007QT
AVB = VACUUM BREAKER
- VALVES TO BE LINE SIZE.
- INSTALL AT THE FOLLOWING LOCATIONS (MINIMUM):
A. DCVA AT ICE MAKER
B. RPBA AT COFFEE BREWER/ESPRESSO MACHINE (IF INSTALLED)
C. RPBA AT BEVERAGE BAR/CARBONATOR (POP MACHINE PIPING DOWNSTREAM OF CARBONATOR SHALL BE PLASTIC IN ORDER TO AVOID CARBONIC POISONING.
D. BACKFLOW PREVENTERS SHALL BE MOUNTED MAXIMUM 5 FEET ABOVE FLOOR PER UPC 2015, SEC. 603.4.3. DISCHARGE DRAINS WITH AIRGAP, TYP.
- BACKFLOW PREVENTERS SHALL BE FULLY INSTALLED AND TESTED PRIOR TO PRE-OPENING INSPECTION

GENERAL NOTES

- PLUMBING CONTRACT DRAWINGS ARE IN PART DIAGRAMMATIC, COVERING THE SCOPE OF WORK AND GENERAL ARRANGEMENT OF THE EQUIPMENT, PIPING, ETC., AND THE APPROXIMATE SIZE OF THE EQUIPMENT AND MATERIALS. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THE PLUMBING WORK. PLUMBING CONTRACTOR SHALL CONSULT GENERAL, SPRINKLER, HEATING/VENTILATING/AIR CONDITIONING CONTRACT AND ELECTRICAL DRAWINGS TO FAMILIARIZE HIMSELF WITH THAT WORK AND TO VERIFY THE SPACES IN WHICH THE PLUMBING WORK WILL BE INSTALLED.
- BECAUSE OF THE NATURE AND SCALE OF THE DRAWINGS, CERTAIN BASIC PLUMBING ITEMS SUCH AS UNIONS, FITTINGS, ELBOWS, ETC., MAY NOT BE SHOWN. WHERE SUCH ITEMS ARE REQUIRED BY OTHER SECTIONS OF THE SPECIFICATIONS, OR WHERE THEY ARE REQUIRED BY THE NATURE OF THE WORK OR BY CODES AND REGULATIONS, THEY SHALL BE FURNISHED AND INSTALLED AT NO ADDITIONAL COST TO THE OWNER. THE DRAWINGS INDICATE GENERAL LOCATIONS OF PIPING, EQUIPMENT, DUCTWORK AND SIMILAR. THE EXACT LOCATION TO BE DETERMINED BY THE CONTRACTOR TO BEST FIT THE LAYOUT OF THE JOB.
- ALL EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, AND CHEMICAL OR MECHANICAL INJURY OR THEFT. PLUMBING FIXTURES SHALL BE COVERED WITH HEAVY PAPER COVERINGS AFTER INSTALLATION AND SHALL BE THOROUGHLY CLEANED AFTER COMPLETION OF THE PROJECT.
- ALL MATERIALS SUCH AS VALVES, FITTINGS, PIPING, EQUIPMENT, PUMPS, COILS, ETC., SHALL BE PROPERLY PROTECTED, AND ALL PIPING OPENINGS SHALL BE TEMPORARILY CLOSED BY THE CONTRACTOR FOR THE WORK UNDER HIS CHARGE, ON A DAILY BASIS, AT THE END OF EACH WORKING DAY, SO AS TO PREVENT OBSTRUCTION AND DAMAGE. THE ABOVE REQUIREMENTS ARE MANDATORY.
- THE CONTRACTOR SHALL SEE THAT ALL MATERIALS, INSTALLATION AND WORKMANSHIP IS PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF ALL APPLICABLE CODES, LAWS, OR ORDINANCES OF THE STATE, AND ALL COUNTY AND LOCAL CITY CODES OR ORDINANCES, INCLUDING ALL STATE OR LOCAL BOARD OF HEALTH, FEDERAL AND STATE ENVIRONMENTAL PROTECTION REGULATIONS, STATE ENERGY CODES AND UTILITY REGULATORY AGENCIES.
- ALL WORK SHALL BE FURTHER PERFORMED IN ACCORDANCE WITH THE NATIONAL BOARD OF FIRE UNDERWRITERS, THE PLUMBING AND BUILDING CODES, NATIONAL ELECTRICAL CODE, THE OCCUPATIONAL SAFETY AND HEALTH ACT, THE AMERICAN GAS ASSOCIATION, AND ALL SUCH OTHER SPECIFIC CODES AS MAY BE REFERRED TO IN THE INDIVIDUAL SECTIONS OF THE SPECIFICATIONS.
- PIPE SIZES SHOWN ON THE DRAWINGS ARE THE MINIMUM SIZES ALLOWED REGARDLESS OF THE CODE MINIMUM, EXCEPT WHEN THE CODE MINIMUM SIZE IS LARGER THAN THAT SHOWN.
- THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONTRACT PRINTS ON THE CONSTRUCTION SITE AT ALL TIMES, ON WHICH HE SHALL ACCURATELY RECORD THE ACTUAL INSTALLATION OF ALL PLUMBING WORK, AS WORK PROGRESSES, MARK CHANGES MADE, WHETHER RESULTING FROM JOB CONDITIONS, ADDENDA, FORMAL CHANGE ORDERS OR OTHER INSTRUCTIONS ISSUED BY THE ENGINEER.
- THE PLUMBING CONTRACTOR SHALL INDICATE PROGRESS BY COLORING IN VARIOUS PIPES, FIXTURES, AND ASSOCIATED APPURTENANCES EXACTLY AS THEY ARE ERRECTED AND INSTALLED.
- MARK ALL PIPE SIZES AND LOCATIONS DURING CONSTRUCTION. ALSO, MARK LOCATIONS OF ALL VALVES AND VARIOUS EQUIPMENT, APPARATUS, AND ASSOCIATED APPURTENANCES AS ERRECTED WEEKLY DURING CONSTRUCTION.
- AT THE COMPLETION OF THE JOB THESE PRINTS, INCORPORATING CHANGES, ADDENDA AND ADDED DATA NOTED ON MARKED-UP PRINTS, INCLUDING DIMENSIONED LOCATIONS OF UNDERGROUND PIPING BEYOND LIMITS OF BUILDING, SHALL BE SUBMITTED TO THE ENGINEER FOR FINAL REVIEW AND COMMENT. THE PRINTS WILL BE RETURNED WITH APPROPRIATE COMMENTS AND RECOMMENDATIONS. THESE CORRECTED PRINTS TOGETHER WITH CORRELATED PRINTS INDICATING ALL THE REVISIONS, ADDITIONS AND DELETIONS OF WORK, SHALL FORM THE BASIS FOR PREPARING A SET OF RECORD DRAWINGS.
- WHERE PIPING, AND OTHER PLUMBING APPURTENANCES PASS THROUGH FIRE PARTITIONS, FIRE WALLS, OR FLOORS, INSTALL A FIRE-STOP THAT PROVIDES AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE AND GASES. FIRE-STOP MATERIAL SHALL BE UL APPROVED, PACKED TIGHT AND COMPLETELY FILL CLEARANCES BETWEEN RACEWAYS AND OPENINGS. FLOOR, EXTERIOR WALL, AND ROOF SEALS SHALL ALSO BE MADE WATERTIGHT AS APPROVED BY THE ADMINISTRATIVE AUTHORITY.
- ARRANGE AND INSTALL PIPING APPROXIMATELY AS INDICATED, STRAIGHT, PLUMB AND AS DIRECT AS POSSIBLE. FORM RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS. KEEP PIPES CLOSE TO WALLS, PARTITIONS AND CEILINGS, OFFSETTING ONLY WHERE NECESSARY TO FOLLOW WALLS AND AVOID INTERFERENCE WITH OTHER MECHANICAL ITEMS. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER; SPACE THEM AT A DISTANCE TO PERMIT ACCESS FOR SERVICING VALVES.
- WATER PIPING SHALL BE PITCHED TO POINTS OF DRAINAGE WITH CONSTANT UNIFORM SLOPE.
- INSTALL HORIZONTAL PIPING AS HIGH AS POSSIBLE WITHOUT SAGS OR HUMPS.
- GRADE DRAINAGE AT UNIFORM SLOPE OF NOT LESS THAN 1/4" PER FOOT TOWARD THE POINT OF DISPOSAL. WHEN APPROVED BY ADMINISTRATIVE AUTHORITY, PIPE SIZE 4" AND LARGER MAY HAVE A SLOPE OF NOT LESS THAN 1/8" PER FOOT.
- WHERE CHANGES IN PIPE SIZES OCCUR, USE ONLY REDUCING FITTINGS.
- FOR DRAINAGE PIPING CHANGES IN DIRECTION, USE LONG SWEEP WHERE POSSIBLE, OTHERWISE, SHORT SWEEP 1/4 BENDS, OR COMBINATION WYE AND 1/8 BENDS; USE SANITARY TEE BRANCHES ONLY FOR HORIZONTAL BRANCHES DISCHARGING TO STACKS.
- INSTALL SECTIONALISING VALVES AND ON EACH BRANCH LINE TO MULTI-FIXTURE GROUPS. LOCATE VALVES IN A READILY ACCESSIBLE LOCATION, DO NOT CONCEAL, DO NOT LOCATE VALVE SYSTEMS BELOW HORIZONTAL UNLESS INDICATED ON PLANS. LOCATE ANGLE STOP VALVES BELOW THE SINK OR WATER CLOSET.
- WATER SUPPLY TO ALL FIXTURES AND CONTAINERS SHALL BE SO INSTALLED AS TO PREVENT POSSIBLE BACK SIPHONAGE OF POLLUTED WATER. ALL SUPPLIES SHALL BE EITHER ABOVE THE FLOOD RIM OF THE FIXTURE OR SEPARATED FROM THE DRAINAGE END BY MEANS OF AN APPROVED VACUUM BREAKERS.
- PROVIDE PIPING AND FIXTURE TRAPS. CONNECT TO FIXTURES AND OTHER EQUIPMENT INDICATED OR SPECIFIED AS REQUIRING SOIL, WASTE, DRAIN AND VENT FACILITIES.
- LAY ALL PIPING TRUE TO LINE AND GRADE, FIT ENDS TOGETHER, MATCH SO THAT SEWER OR DRAIN WILL HAVE SMOOTH AND UNIFORM INSERT. FOLLOW LOCATIONS AND ELEVATIONS AT SITE. AS THE PIPE LAYING PROGRESSES, CLEAR PIPE INTERIOR OF CEMENT, DIRT, AND OTHER FOREIGN MATERIALS. DURING WORK STOPPAGE PERIODS, PROVIDE EFFECTIVE PLUGS OR COVERS FOR OPEN ENDS OF PIPE AND DRAINS.
- PROVIDE CLEANOUTS WHERE INDICATED AND AT INTERVALS OF 100' OR AS REQUIRED BY LOCAL PLUMBING CODE AND WHERE REQUIRED AT CHANGES OF DIRECTIONS OF SOIL AND WASTE STACKS. INSTALL CLEANOUTS SO AS TO BE ACCESSIBLE FOR EASY REMOVAL AND TO PROVIDE CLEARANCE FOR RODDING. CLEANOUTS SHALL BE THE SAME SIZE AS PIPE SERVED EXCEPT THAT NO CLEANOUT NEED BE LARGER THAN FOUR INCHES.
- EXTEND VENT PIPES 12 INCHES ABOVE ROOF AND 10FT MINIMUM AWAY FROM ANY FRESH AIR INTAKES AND AT LEAST 48 INCHES AWAY FROM A PARAPET WALL.
- SANITARY VENT PIPING SHALL BE GRADED SO THAT THE AIRFLOW TO THE OUTSIDE WILL BE CONTINUOUSLY UPWARD AND SO THAT NO LOW POINTS WILL BE DRAINED.
- MAKE TIGHT CONNECTION BETWEEN WATER CLOSET FLANGES AND EARTHENWARE FIXTURE BY MEANS OF AN APPROVED MOLDED WAX RING OR SETTING COMPOUND AND BOLTING.
- VENTS: PROVIDE FLASHING FOR STACKS PASSING THROUGH ROOF. MAKE WATER-TIGHT AT ROOF. DO NOT LOCATE VENT THROUGH ROOF LESS THAN 24 INCHES FROM A PARAPET WALL.
- ALL PLUMBING FIXTURES AND PIPING ARE TO BE LISTED BY AN APPROVED LISTING AND TESTING AGENCY AND PROPERLY LABELED.
- COORDINATE ALL LOCATIONS, SIZES, AND ELEVATIONS OF ALL SLEEVES THROUGH WALLS, BEAMS, SLABS AND FOOTING WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS. ALL PIPES SLEEVING THROUGH FOOTINGS SHALL HAVE A SLEEVE DIAMETER OF TWO PIPE SIZES OVER THE PIPE PASSING THROUGH THE FOOTING. NO PIPE TO BE PLACED THROUGH FOOTING UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
- ALL PIPES SHALL BE PROTECTED AT THE POINT THEY CROSS BUILDING EXPANSION JOINT, EITHER WITH AN EXPANSION FITTINGS OR IN ANOTHER MANNER ACCEPTABLE TO THE ENGINEER.
- PLUMBING CONTRACTOR SHALL CONNECT ALL GAS PIPING TO ALL GAS RELATED UNITS PER PLAN WITH LISTED AND APPROVED GAS SHUT-OFF VALVE, SEDIMENT TRAP, AND UNION.
- FAUCET CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 POUNDS.
- PENETRATION OF FLOOR/CEILING ASSEMBLIES AND ASSEMBLIES REQUIRED TO HAVE A FIRE-RESISTANCE RATING SHALL BE PROTECTED IN ACCORDANCE WITH THE BUILDING CODE.
- WHERE WATER PRESSURE WITHIN A BUILDING EXCEEDS 80 PSI, AN APPROVED WATER-PRESSURE REDUCING VALVE CONFORMING TO ASSE, 1003 WITH STRAINER SHALL BE INSTALLED TO REDUCE THE PRESSURE IN THE BUILDING WATER DISTRIBUTION PIPING TO 80 PSI STATIC OR LESS.
- DISINFECTION OF POTABLE WATER SYSTEM SHALL COMPLY WITH THE LOCAL AND THE STATE PLUMBING CODE.
- PROPER ACCESS MUST BE PROVIDED FOR THE TESTING AND MAINTENANCE OF THE BACKFLOW PREVENTER. IF THE BACKFLOW PREVENTER IS INSTALLED MORE THAN 5'-0" ABOVE THE FLOOR, SPECIAL PROVISIONS MUST BE MADE.
- PROVIDE AND INSTALL A SINGLE GAS ISOLATION VALVE FOR THE MULTIPLE GAS METER BANKS FOR THE ENTIRE BLDG.
- ALL PIPING SHALL MAINTAIN AT LEAST 5'-0" CLEARANCE IN FRONT OF THE HVAC SUPPLY AND RETURN OPENINGS.
- PLASTIC PIPES ARE NOT PERMITTED TO BE INSTALLED WITHIN THE AIR PLENUM SPACE.
- HUNG WASTE PIPING SHALL BE STRUCTURALLY SUPPORTED AS TIGHT AS POSSIBLE BELOW THE STRUCTURAL BEAMS TO GAIN MORE HEAD SPACE AS IT PITCH TOWARDS THE LOWEST POINT TO KEEP WASTE PIPING WITHIN THE CEILING SPACE.
- CONTRACTOR TO PROVIDE AND INSTALL QUICK DISCONNECT GAS LINES AT ALL COOKING EQUIPMENT.
- NO NON-METALLIC PIPING IS ALLOWED WITHIN THE RETURN-AIR PLENUMS.
- AIR BARRIER TESTING REPORTS SHALL BE SUBMITTED TO THE CITY OF LACEY BUILDING DEPARTMENT PRIOR TO CALLING FOR FINAL INSPECTION.

CLIENT:

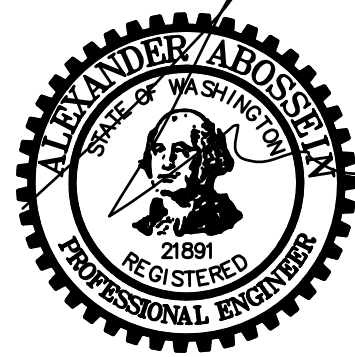


Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE TADM:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

GENERAL NOTES & CALCULATIONS

SHEET NO:

P0.2

ABOSSEIN #223054

Abossein Engineering, L.L.C.

MECHANICAL - ELECTRICAL
CIVIL - LEED
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www.abossein.com

SPECIFICATIONS

1.00 – GENERAL SECTION 15400 – PLUMBING

1.01 DESCRIPTION OF WORK

Furnish all labor, materials, equipment and services required for and/or reasonably incidental to the completion of the following work.

A. Sanitary waste and vent piping system including connections to building sewer as shown.

B. Domestic hot and cold water systems including water heater, and related accessories and controls. Connection to building water as shown.

C. Plumbing fixtures, trim and accessories including installation and support.

D. Flashing and sealing of roof and exterior wall penetrations for water tightness.

E. Caulking and sealing of floor and wall penetrations and formed shaft penetrations.

F. Backing for securing fixtures, trim and piping.

G. Access doors where shown or required by code.

H. Hangers, supports, and guides.

I. Cleanup of debris and final cleanup of drains, fixtures and equipment.

J. Record drawings and operating manuals.

K. License, permits and associated fees.

L. Cutting, drilling and patching for all surfaces in relation to plumbing work.

M. Condensate drains from HVAC equipment, and gas piping

1.02 RELATED WORK INCLUDED UNDER OTHER SECTIONS

A. HVAC and Electrical Work, 15500 and 16000

B. Fire Protection Work 153000 (if applicable)

1.03 EXAMINATION OF SITE

A. Visit site before submitting bid and check location of all existing conditions which will affect this work, verify dimensions and locations shown on drawings and cover all costs. Contractor shall assume reasonable variations or minor omissions and shall complete proposed work without additional cost. Failure to visit site will not lessen responsibility or entitle additional compensation for work not included in proposal.

B. Visit site of the work, compare it with the drawings and specifications as to the conditions under which work is to be performed, ascertain and check all conditions and elevations and take all measurements which may affect the work. No allowance shall subsequently be made for any extra expense or claims due to failure or neglect under this requirement to make such examination, including examination of restricted working conditions or such other difficulties visually observed during site visit. Contractor is responsible for becoming completely familiar with the architectural and structural conditions and limitations which will exist in the building and to provide all labor, tools and materials required to produce a completely concealed installation as indicated on the plans, specifications, and required by the code.

1.04 DRAWINGS

The accompanying drawings shall be considered part of these specifications. Work and materials shown on the drawings and not mentioned in the specifications and vice versa shall be executed as if specifically mentioned or shown in both. The drawings shall be considered as schematic in nature and minor modifications of the work to comply with the structure as found shall be made.

1.05 RULES AND REGULATIONS

A. All work and material shall be in full accordance with the latest rules and regulations of the State Fire Marshal and other applicable State and local rules and regulations. Nothing in these drawings or specifications shall be construed to permit work not conforming to these codes.

B. Furnish without any extra charge any additional material and labor when required to comply with these laws, ordinances and codes regardless of whether shown or mentioned in these specifications of drawings.

C. All work and material shall be in accordance with the Landlord's Mech/Elect. Design Criteria. All contractors shall obtain a copy from the Landlord's Tenant Coordinator or Mall Operations manager and become familiar with the requirements contained within prior to bidding the job. Where Landlord's requirements conflict with Codes or Ordinances the strictest interpretation shall apply.

1.06 SUBMITTALS

A. Submit for review to the Owner a complete and all-inclusive list of equipment and materials proposed for use (6 copies), accompanied by manufacturer's data sheets. Data shall be forwarded in a single package written 15 days after award of contract. Submit six blackline prints and one reproducible shop drawing showing proposed plumbing installation. Include sizes, locations and other required information to coordinate installation with other trades.

B. Within 5 days after award of contract, submit 6 copies of a letter stating any materials that contractor wishes to substitute, to the Owner for approval. Include such information as manufacturer's name, type of material, certified ratings, overall appearance, and necessary information to explain function and operation of material. All proposed substitutions shall be equal in quality, design, utility and appearance to material, equipment or method specified.

1.07 AS-BUILT DRAWINGS

A set of plumbing plans will be furnished to the Contractor on which he shall indicate the installation "as-built" as the work progresses. Upon completion of the work, a set of reproducible drawings shall be obtained from the Owner at cost, and all changes as noted on the record set of prints shall be incorporated thereon. This set of reproducibles, along with one set of blueprints, shall be delivered to the Owner upon completion and before final acceptance of the project.

1.08 GUARANTEE

The Contractor shall leave the entire installation in complete working order free from any defective material, workmanship or finish. He shall guarantee to repair or replace, without charge, defects due to faulty workmanship or material for a period of one year from the date of filing of the Notice of Completion.

1.09 OPERATION MANUALS AND OWNER INSTRUCTIONS

A. Provide complete operation and maintenance manuals covering all Plumbing systems and equipment that have been installed. Three (3) copies of the manual shall be bound in hardback binders.

B. Provide instructions to owner as to operation of all equipment. Instruction period to commence for minimum of (2) hours and shall be scheduled at owner's convenience.

1.10 CUTTING AND PATCHING

A. The contractor shall do all cutting, drilling and patching which may be required for the installation of the work under this Section of the Specifications.

B. Patching shall be of the same workmanship, material, and finish and shall match accurately all surrounding construction in a manner satisfactory to the Owner. No cutting of the structure shall be permitted without written approval of the Owner.

2.00 – MATERIALS – PIPING

Building drain and vent piping materials shall comply with the local authority having jurisdiction. All sanitary system materials shall be listed by an approved listing agency.

A. Interior Underground Sanitary and Waste Piping: No-Hub C.I. pipe and fittings or ABS DWV sch. 40. Where cast iron pipe, fittings and stainless steel couplings are used they shall be listed and tested in accordance with standards referenced in the 2019 CPC Table 701.2. Pipes and fitting shall be marked with country of origin, manufacturer's name or registered trademark as defined in the product standards, the third party certifier's mark, and the class of the pipe or fitting.

B. Interior Suspended Sanitary and Vent Piping:

1. 3" and Larger – No-Hub C.I. or ABS DWV sch 40.

2. 2" and Smaller – Schedule 40 galvanized steel pipe with screwed durham cast iron fittings for waste and vent

C. Interior Domestic Water Piping Above Ground:

3" and Smaller – Type L hard tempered copper with solder end fittings. 95–5 tin and antimony solder jointing (lead-free).

D. Outdoor Above Ground Domestic Water Piping:

3" and Smaller – Type L hard tempered copper with solder end fittings. 95–5 tin and antimony solder jointing (lead-free).

E. Domestic Water Piping Below Ground:

Type K copper pipe shall be used. When piping is installed within a building and under a concrete slab, it shall be installed without joints. When joints are unavoidable, they shall be brazed.

a. Protective pipe covering shall be factory or field applied accordingly to manufacturers written instructions.

b. 2 1/2" or larger: Products shall be Polyken No. 1027 primer and Polyken No. 910 tape coating, 10 mil, minimum 1" overlap required.

c. 2" and smaller: Products shall be 10 mil plastic sleeve protector.

F. Condensate Drain Piping: Copper water tube ASTM B88, Type "M", solder with 95–5 solder, lead-free type.

2.01 PIPE FLASHINGS

AS APPROVED BY ROOF MEMBRANE MANUFACTURER.

2.02 VALVES

A. Gate Valves: Red & White 204 or equal, 3" and smaller.

B. Check Valves: Red & White 238 or equal, 3" and smaller.

C. Ball Valves: Nibco 580-70 or equal, 3" and smaller.

2.03 PLUMBING FIXTURES AND TRIM:

Plumbing fixtures to be furnished and installed under this contract. See plumbing fixture schedule.

2.04 PIPE HANGERS AND SUPPORTS

A. Superstrut, Grinnell, or approved equal.

B. Installation per manufacturer's recommendations.

C. Pipe hangers shall have non-metallic felt or elastomeric liner or wrap applied to the pipe for electrolytic protection where hangers and supports are used to support copper tubing or pipe. The liner or wrap shall be designed to allow expansion or contraction of the piping.

2.05 PIPE SLEEVES

Shall be provided to protect all piping through concrete and masonry walls. Annular spaces between sleeves and pipes shall be filled or caulked in an approved manner. Annular spaces between sleeves and pipes in fire-resistance-rated assemblies shall be filled or tightly caulked in accordance with the building code. All underslab cast iron piping shall be covered with polyethylene sleeve (polywrap) and contractor must follow manufacturer's manual for proper installation.

2.06 TEMPERATURE AND PRESSURE RELIEF VALVE

Temperature & pressure relief valve shall discharge full line size to an approved waste receptor through an air gap as indicated on plans or 6" minimum, 24" maximum.

2.07 SCALD GUARD PROTECTION

Provide and install lavatory scald protection for waste piping and hot water piping.

2.08 DOMESTIC PIPING INSULATION

A. Provide and install "insulation protection shield" for piping with foam or fiberglass insulation.

B. Insulate all rainwater piping with 1" thick fiberglass insulation below the deck up to 25 feet of horizontal run.

C. Insulate all horizontal waste piping (Hung) with 1-1/2" thick fiberglass insulation above noise sensitive areas ONLY.

D. Insulate all domestic water piping to meet California Energy Code Table 120.3-A. Pipes less than 1" diameter require 1" of insulation if operating between 105–140°F, and 1.5" of insulation if operating over 140°F. All piping outside the building or on roof shall be insulated with 1-1/2" thick Armstrong Armaflex or approved equal, and sections butted firmly together.

E. Insulate all condensate drain piping with 1/2" thick Armstrong Armaflex or equal, and sections butted firmly together.

F. Insulate all hot water piping with 1" thick fiberglass insulation.

G. Provide and install scald guard protection/insulation under sinks with exposed p-traps and hot water supplies.

H. Minimum R-values for hot water piping insulation having pipe diameter of less than or equal to 2" is R-4, for larger than 2" diameter is R-6.

I. All outdoor insulation shall be protected with aluminum jacket.

2.09 CLEANOUT

A. Accessible cleanout shall be provided at the base of each waste stack and rainwater leaders. Additional cleanout shall be provided in a drainage line for each horizontal change of direction exceeding 135 degrees. Cleanout must be provided on a horizontal drain line exceeding 5ft or more in length serving sinks or urinals. An approved type of 2-way cleanout fitting shall be installed outside of a building at the lower end of a building drain and extended to grade.

2.10 WATER HEATER

A. Provide anchors and straps to resist horizontal displacement due to earthquake motion.

B. Strapping shall be located upper 1/3 and lower 1/3 of its vertical dimensions. Straps shall be a minimum 2"x16 gage properly secured to wall studs. Elevate water heater at least 4" minimum above the finished floor with an approved base. Provide a 22 gage water tight drain pan, corrosion resistant, at the bottom of the water heater. Drain pan shall have a 3/4" drain line to be discharged into an approved receptor by means of an air gap. A properly sized thermal expansion tank shall be provided at the water heater. Hot water supply for the lavatories and hand sinks shall not exceed 110°F temperature.

2.11 TRENCHING

A. All trenches deeper than the footing of any building or structure and paralleling the same shall be at least 45 degrees therefrom.

3.00 – INSTALLATION AND EXECUTION

3.01 GENERAL

A. Cast-Iron Hubless with stainless steel shielded coupling shall be supported horizontally at every other joint, unless over 4 feet, then support each joint adjacent to joint, not to exceed 18", brace at not more than 40ft intervals, support at each horizontal branch connection. Hangers shall not be placed on the coupling. Support vertical pipes at the base and each floor not to exceed 15ft. Hangers and Supports for all piping shall comply with the CPC 2010 Table 3-2.

3.02 SPECIAL REQUIREMENTS, RESPONSIBILITIES AND TESTING

A. Install piping generally level, free of traps and unnecessary bends, to conform with building requirements. Pipe to be free of defects, and installed to avoid any possible galvanic action by isolating dissimilar metals.

B. Test and record available domestic water pressure in static and dynamic conditions. For dynamic testing record pressure and flow rate in gallons per minute. Transmit this information to the engineer before proceeding with the work.

C. Provide all tests specified hereinafter and as otherwise required. Provide all test equipment, including test pumps, gauges, instruments and other equipment required. Pressure gauges used shall be graduated in increments not greater than 5 pounds per square inch.. No plumbing or drainage system or part thereof shall be covered, concealed, or put into use unless it has been specified. Conduct all tests in the presence of the Owner's representative, and obtain the necessary jurisdictional authority inspections.

D. Apply a water test to the waste, and vent systems whether in its entirety or in sections; if applied to the entire system, tightly close all openings in the piping except the highest opening, and fill the system with water to the point of overflow.

If the system is tested in sections, tightly plug each opening except for the highest opening of the section under test, and fill each section with water, but test with no less than a 10' head of water. In testing successive sections, test at least the upper 10' of the next preceding section so that no joint or pipe in the building (except the uppermost 10' of the system) shall have been submitted to a test of less than a 10' head of water. Keep water in the system or in the portion under test for at least 24 hours before inspection starts, with the system tight at all points.

E. Domestic water system shall be tested and proved tight under a pressure of not less than 120 PSI. Piping must stand the test for a period of 24 hours without leaking.

F. Chlorination of the domestic cold and hot water piping systems in accordance with standard testing procedures and local health department requirements. Testing by a firm such as Bennet-Marine or equal. Submit certificate of satisfactory test results.

G. Upon completion of testing, certify to the Architect, in writing that the specified tests have been performed and that the installation complies with the specified requirements.

3.03 PIPING INSTALLATION

A. Make changes in size of pipe with reducing fittings; bushings will not be permitted except for bell shaped copper bushings.

B. Install dielectric insulating unions in water piping between copper piping and ferrous piping or equipment – Epco, or equal.

C. Install exposed polished chrome connections from fixtures or equipment with special care. Show no tool marks or threads at fittings.

D. Cap openings in piping during construction.

E. Provide 85X red brass pipe IPS, in connection to faucets, flush valves, hose bibbs or similar items requiring rigid piping. Extend brass pipe from fixture to point where piping can be securely fastened to building construction. All exposed piping and stop valves in connection to fixtures shall be chrome plated brass.

F. Install unions adjacent to valves and where necessary to facilitate disassembly of piping.

G. Escutcheons: Fit exposed pipes passing through floors, walls or ceilings with escutcheons. Manufacture special sizes of escutcheons from steel and prime coat same. Cut in round, rectangular or square space to provide a clean appearance acceptable to the Architect.

H. Support piping independently of equipment to which it is connected.

I. Make copper solder joints with 95/5 solder, or silfos; clean surfaces to be joined free of oil, grease, rust or oxides and apply Flux to each joint before heating assembly.

J. Rough-in and make final connections to all other equipment furnished under other Divisions, requiring plumbing connections.

3.04 SUBSTITUTIONS

A. One or more makes of materials and methods may have been specified to establish the standard of quality, workmanship, finish and design required, but other materials or methods equal or better in quality, workmanship, finish, design, and guaranteed performance, may be submitted for review and approval as substitution. All substitutions are subject to review and approval by Architect, Engineer, and Owner.

B. Substitutions shall be requested in a written form and shall be accompanied with a signed statement that proposed substitution is equal, or better than specified. Additional documentation to substantiated proposed substitution may be required by Owner, Architect, and Engineer. Contractor shall submit as directed.

C. Contractor shall accompany request for substitution letter with a completed CSI Substitution Form include the comparison for following:

1. Performance Data

2. Dimensions

3. Costs and Delivery Schedule

4. Listed and Approved

D. A written signed statement from the General Contractor shall accompany substitution request form assuring that:

1. Dimensions has been verified with project conditions and has coordinated with other trades. Substitution does not affect dimensions shown on drawings.

2. He shall pay and burden the costs for changes to the project including redesign, reengineering and review of substitution. Only one engineering review time is allowed for each product substitution. Contractor shall be responsible for additional review time and shall pay Architect and Engineer's time at their professional rate schedule.

3. He has confirmed that the proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.

4. He has confirmed that maintenance and service parts will be locally available for the proposed substitution.

E. Cost savings resulting from substitution shall be returned to the contract or the Owner if the substitution is permitted.

F. No work involving materials submitted for substitution shall proceed until written acceptance is received from the Owner. The Owner is the final judge of acceptability of preferred substitutions.

3.05 COORDINATION

A. Coordinate work with other trades to avoid conflict and to provide correct rough-in and connection for equipment furnished under other trades that require plumbing connections. Inform Contractors of other trades of the required access to and clearances around equipment to maintain service ability and code compliance.


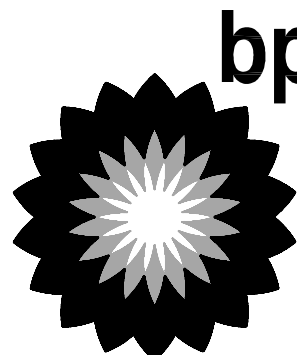
B. Verify equipment dimensions and requirements with provisions specified under this Section. Check actual job conditions before fabricating work. Report necessary changes in time to prevent needless work. Changes or additions, subject to additional compensation, which are made without written authorization and an agreed price, shall be at the Contractor's risk and expense.

3.06 MARKING AND IDENTIFICATION

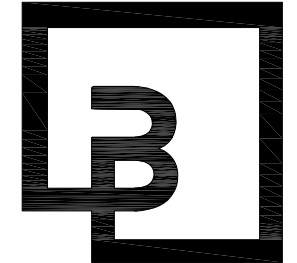
A. All domestic cold water, hot water, sanitary sewer, sanitary vent, condensate drain, and natural gas piping shall have visible permanent labels at every 20 feet, the direction of normal flow shall be clearly shown, at least once per room, and shall be visible from the floor level. The minimum size of the letters shown on table 6-1 below. Valves shall be labeled with stenciled or stamped metal tags bearing the name of the system they carry.

PIPE SIZE (INCHES)	SIZE OF LETTER (INCHES)
1/2" – 1 1/4"	3/8"
1 1/2" – 2"	1/2"
2 1/2" – 6"	1 1/4"
8" – 10"	2 1/2"

CLIENT:













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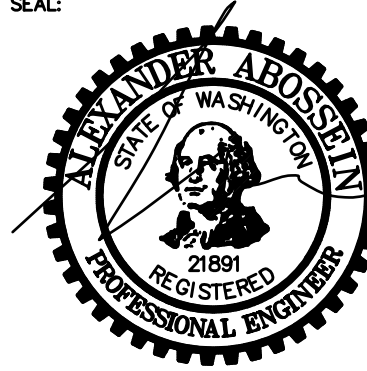


Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
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barghausen.com

NO.	DATE	REVISION DESCRIPTION
		
		
		
		
		
		
		
		
		
		

SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN

@ HIGHWAY 512

PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY: ALLIANCE ZADN:

CHECKED BY: BP REP:

DRAWN BY: ALLIANCE PM:

VERSION: PROJECT NO: 21730

DRAWING TITLE:

PLUMBING SPECIFICATIONS

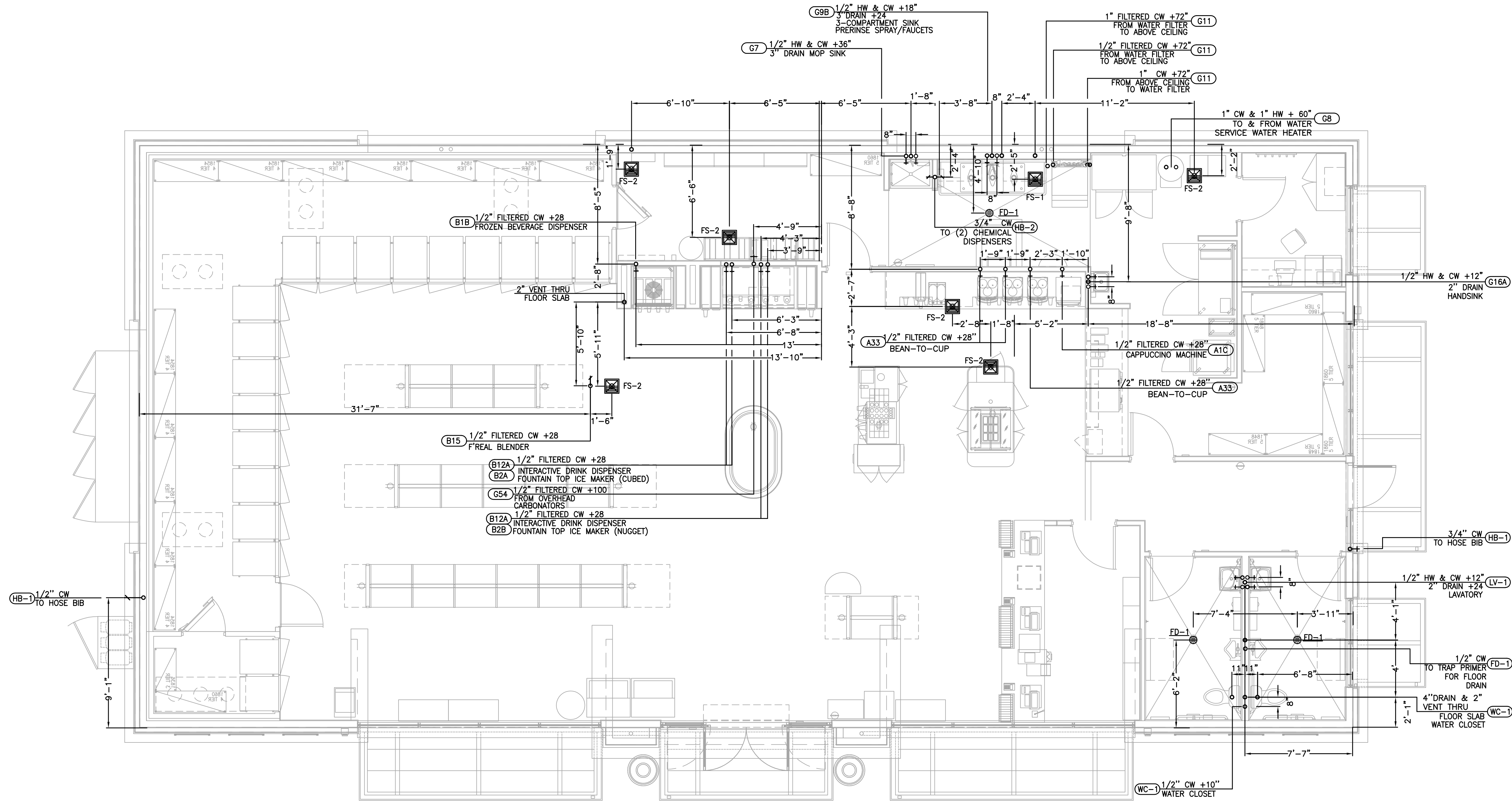
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Abossein Engineering, L.L.C.

MECHANICAL – ELECTRICAL
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FIRE PROTECTION
18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
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E-Mail: cservice@abossein.com
www.abossein.com

ABOSSEIN #223054

P0.3



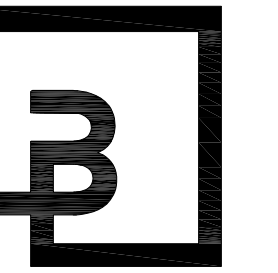
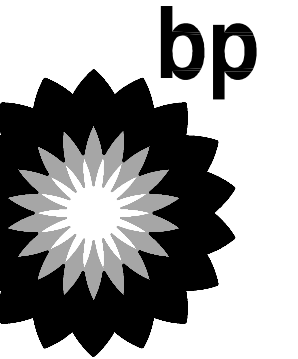
1 PLUMBING ROUGH-IN PLAN
P1.0 SCALE: 1/4" = 1'-0"

ABOSSEIN #223054

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L.L.C.

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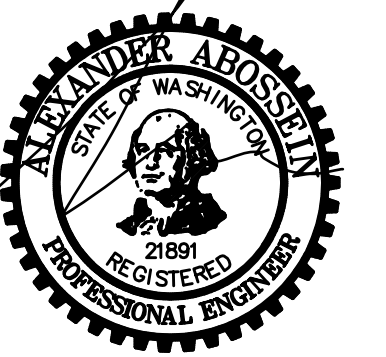


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DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
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@ HIGHWAY 512
PUTALLUP, WASHINGTON

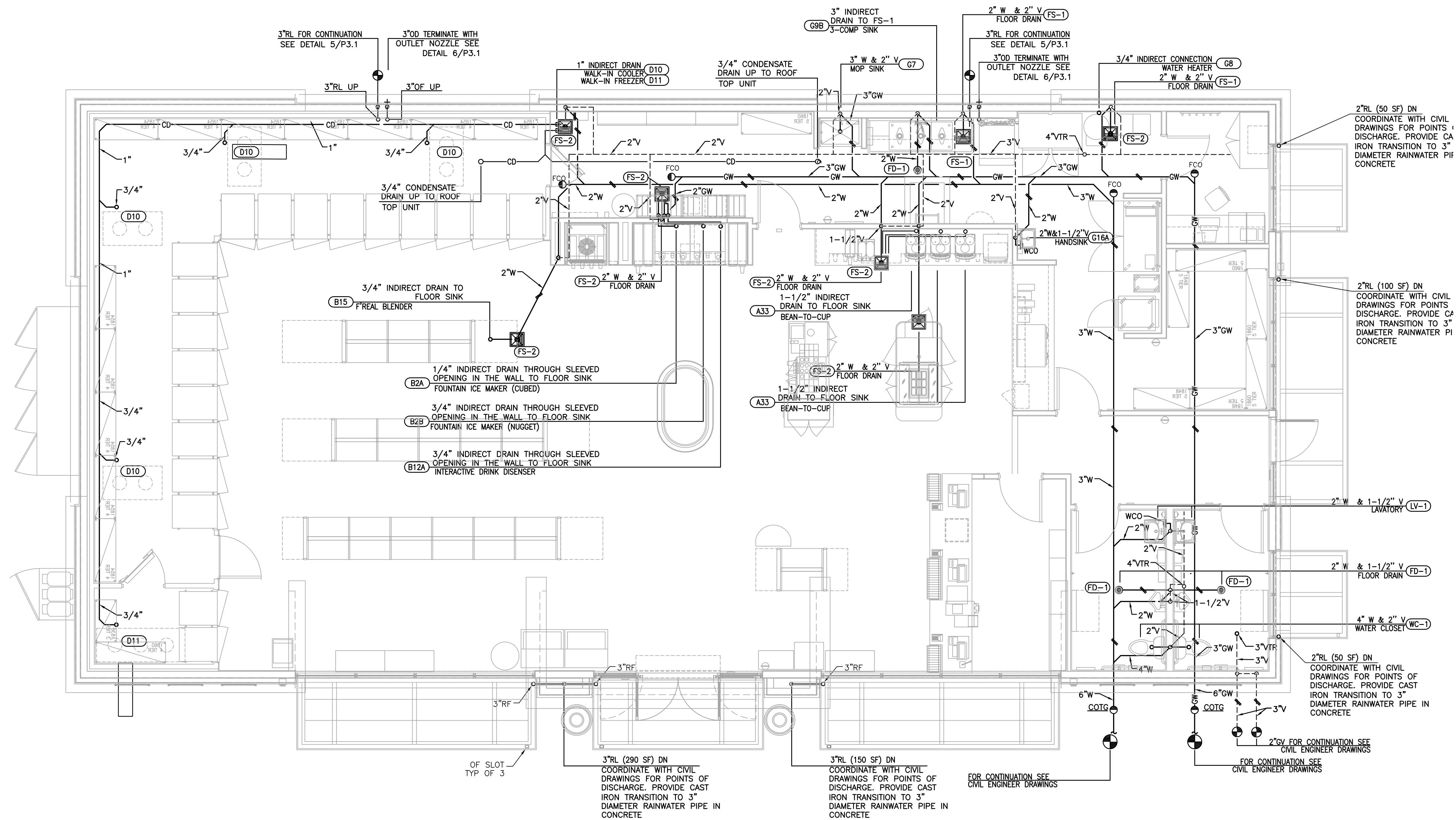
FACILITY #7184

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CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

DRAWING TITLE:
PLUMBING
ROUGH-IN PLAN

SHEET NO:

P1.0



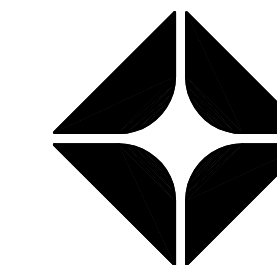
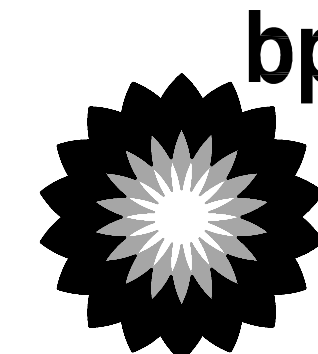
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P1.1 SCALE: 1/4" = 1'-0"

ABOSSEIN #223054

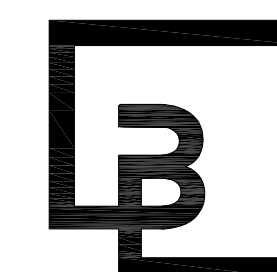
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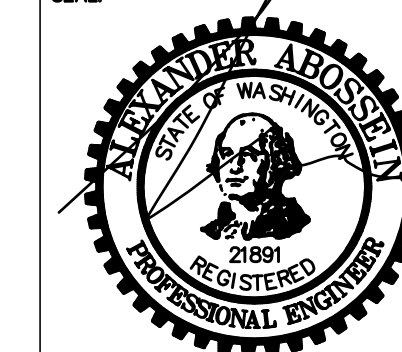


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DEVELOPMENT INFORMATION:

ARCO NTI
 3400 am/pm
 FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

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 @ HIGHWAY 512
 PUYALLUP, WASHINGTON

FACILITY #7184

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CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
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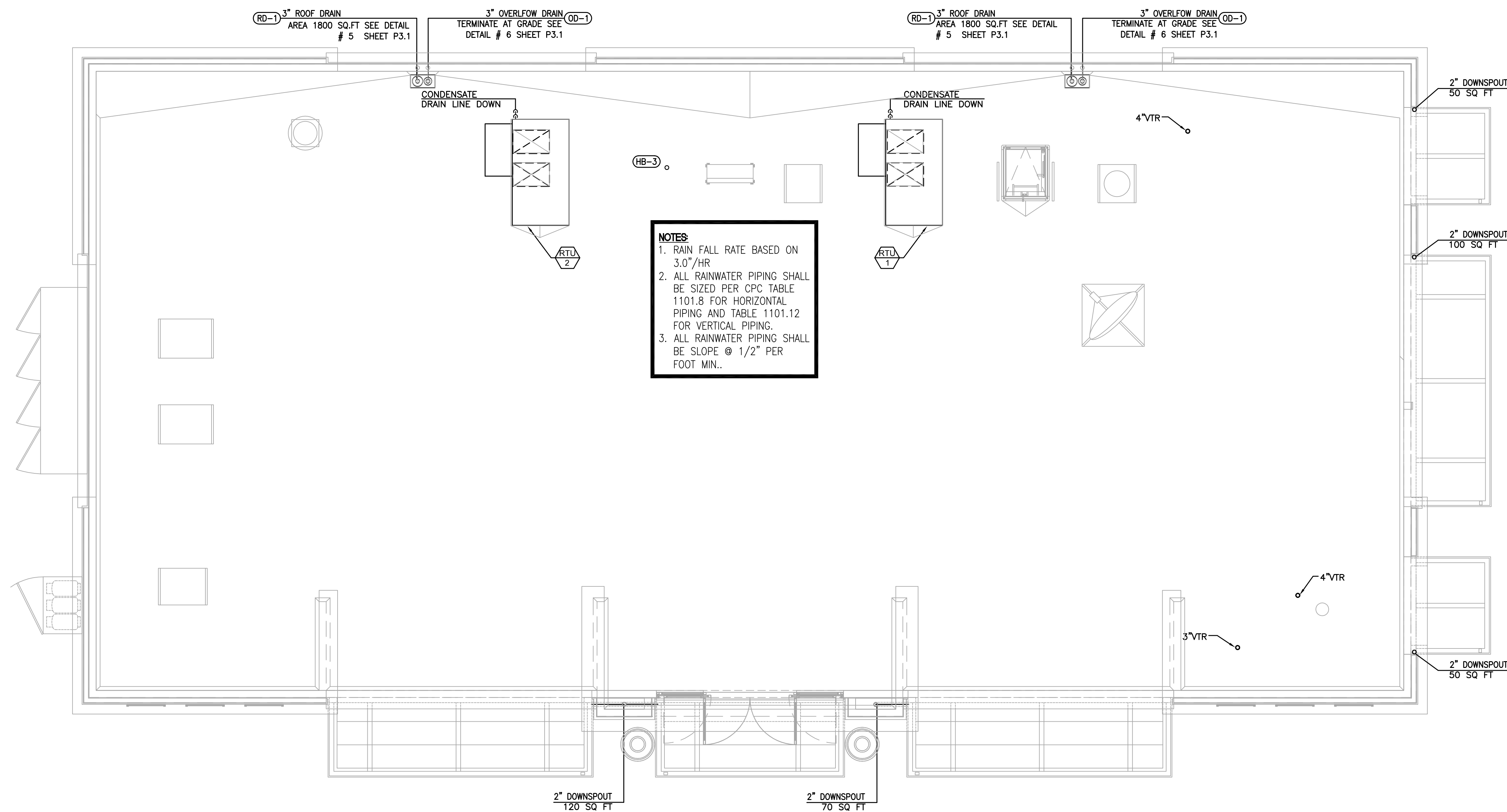
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**SANITARY DRAINAGE
 & VENT PLUMBING
 PLAN**

SHEET NO:

P1.1



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NOTES:
1. RAIN FALL RATE BASED ON 3.0\"/>

1 PLUMBING ROOF PLAN
P1.3 SCALE: 1/4\"/>

ABOSSEIN #223054

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CLIENT:

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B

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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

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@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #7184

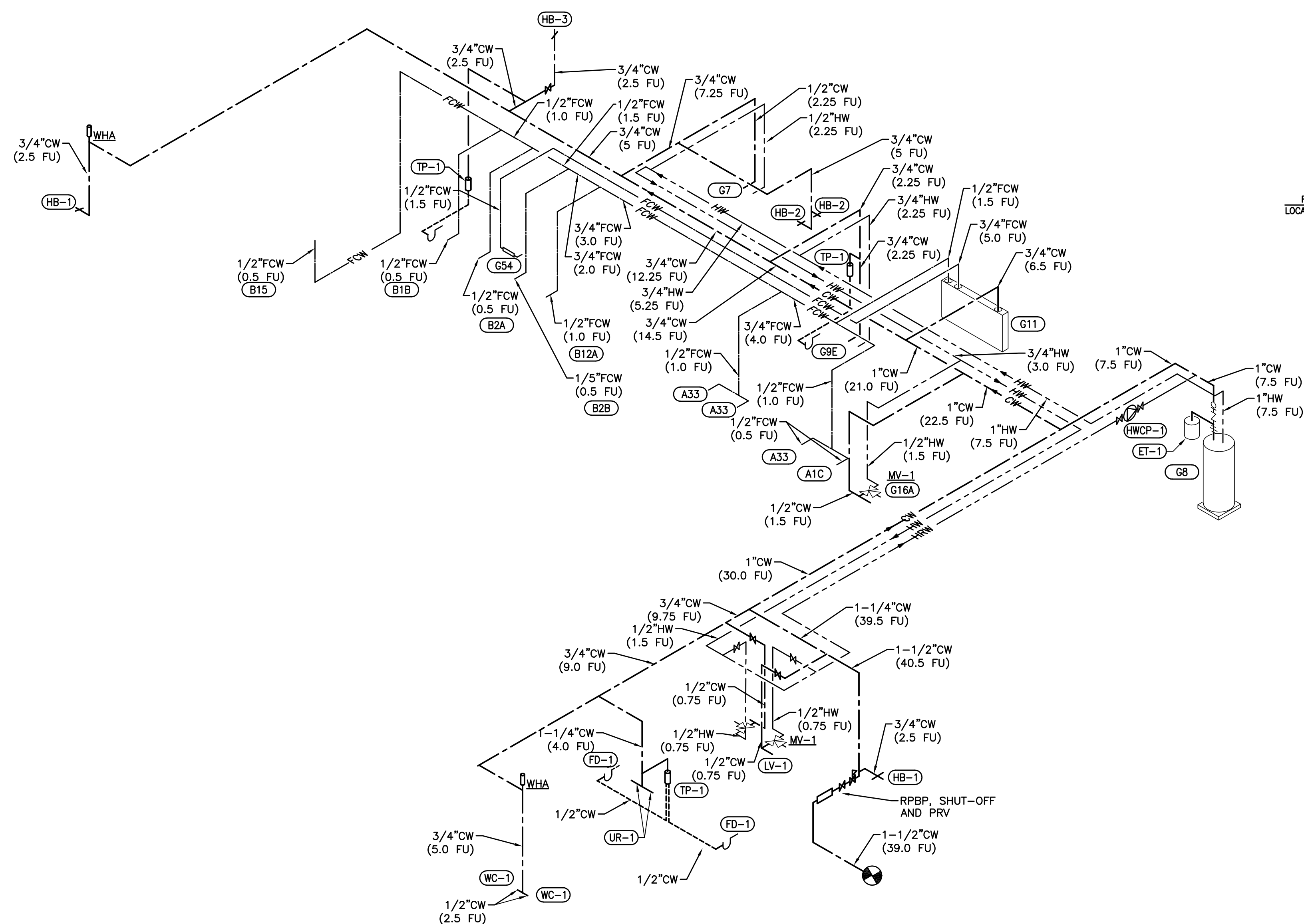
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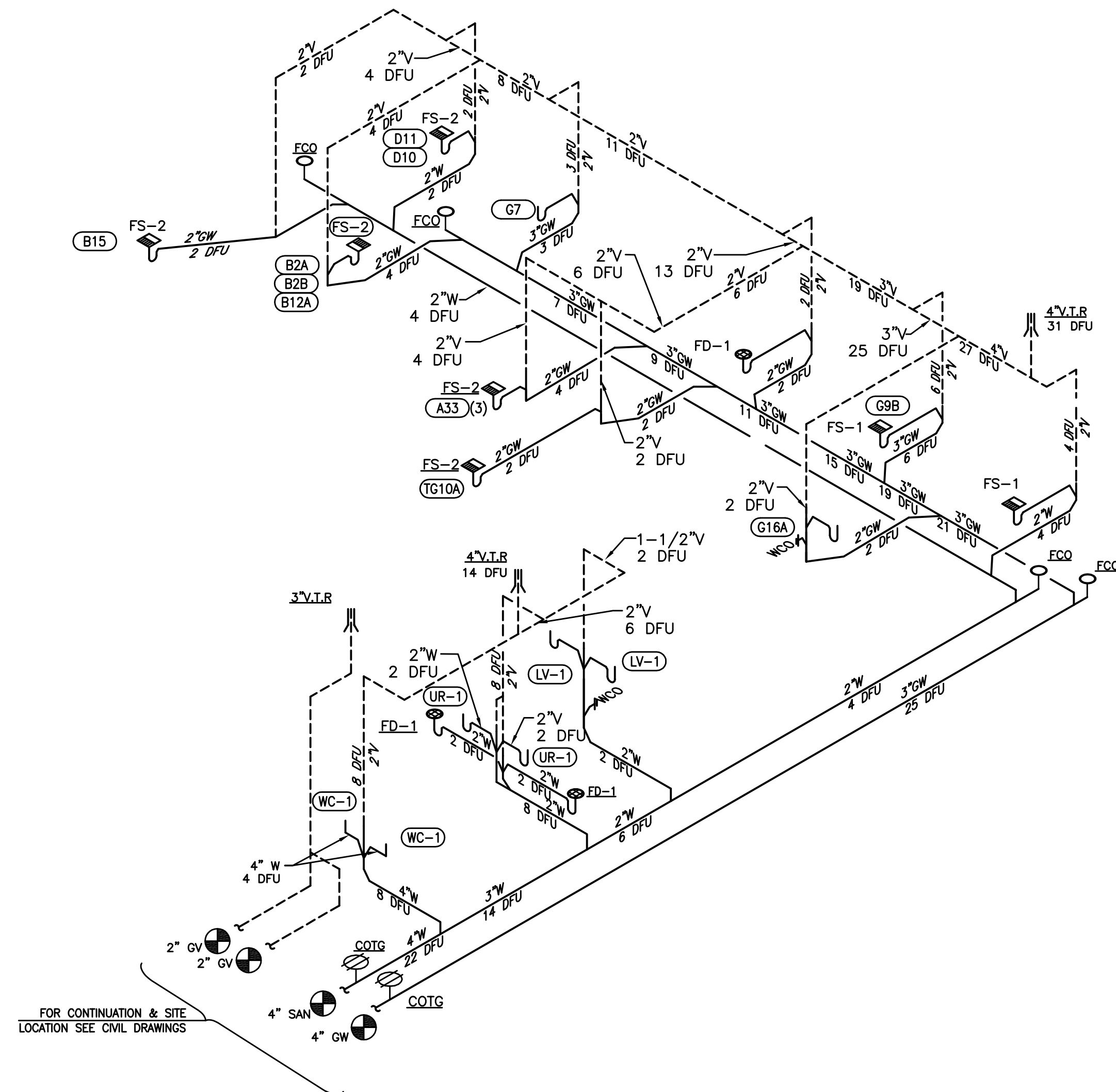
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P1.3



2 DOMESTIC WATER RISER DIAGRAM
P2.0 SCALE: NONE



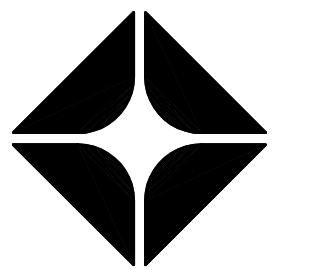
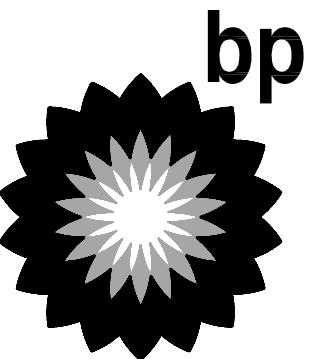
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ABOSSEIN #223054

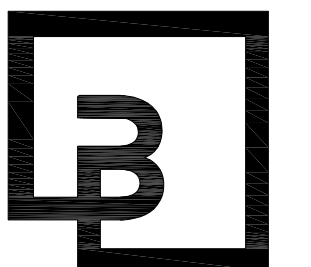
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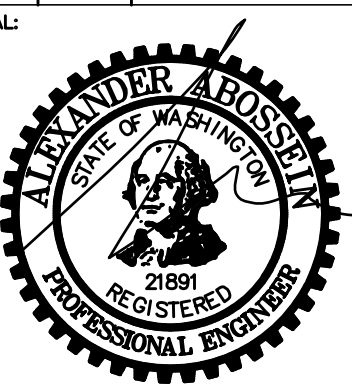


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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

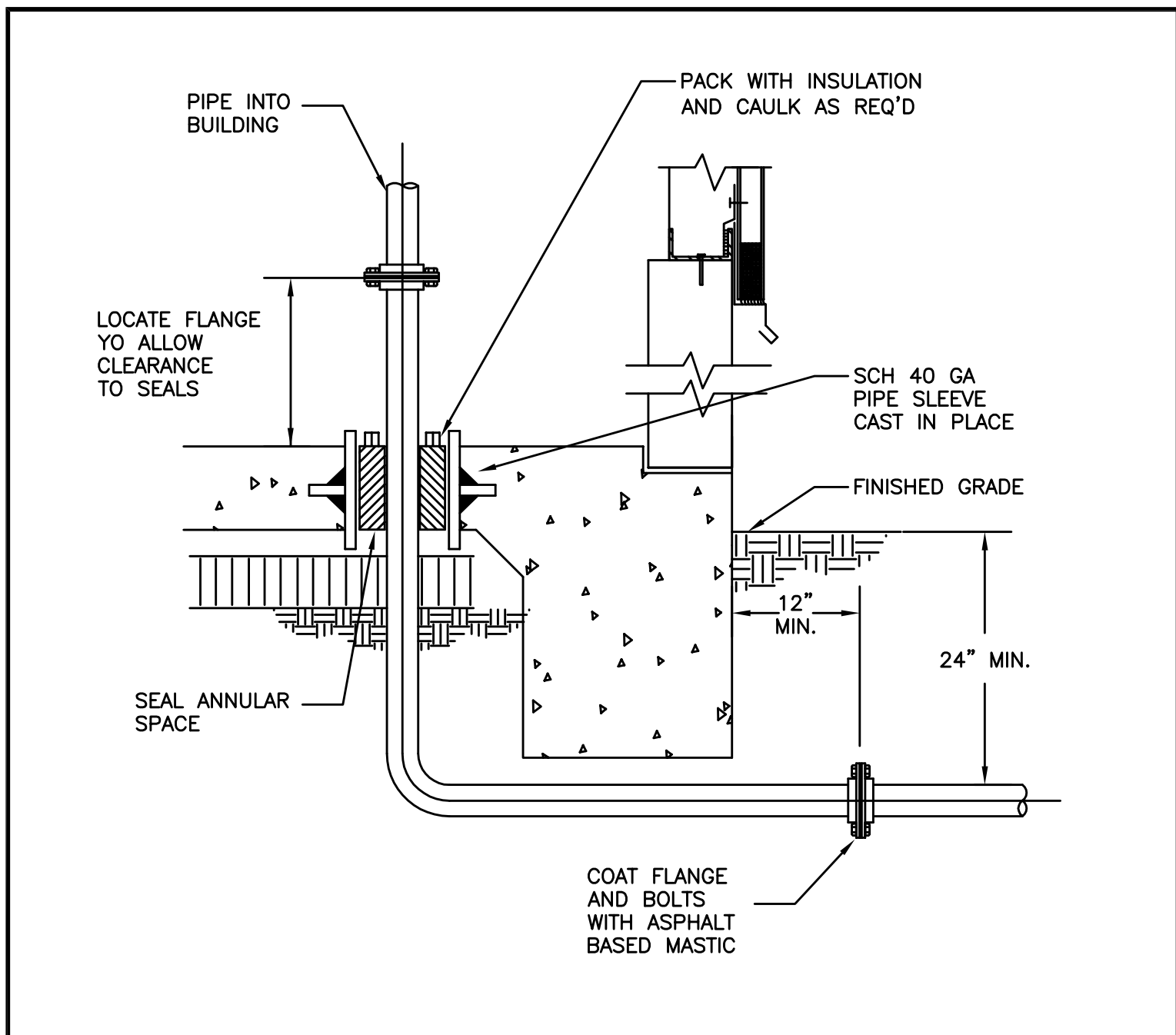
FACILITY #7184

DESIGNED BY:	ALLIANCE ZADNA:
CHECKED BY:	BP REPA:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
	21730

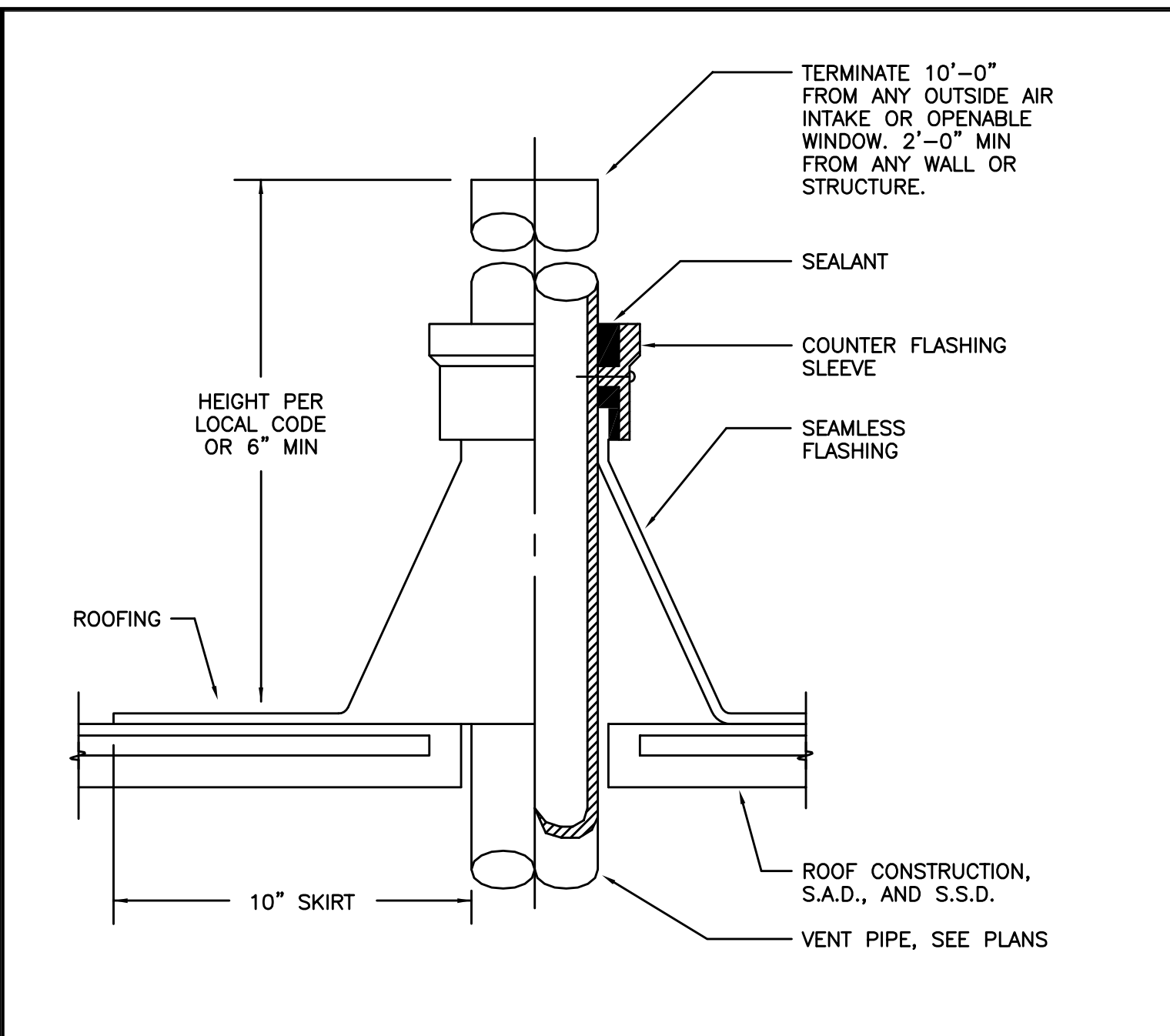
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**RISER
DIAGRAMS**

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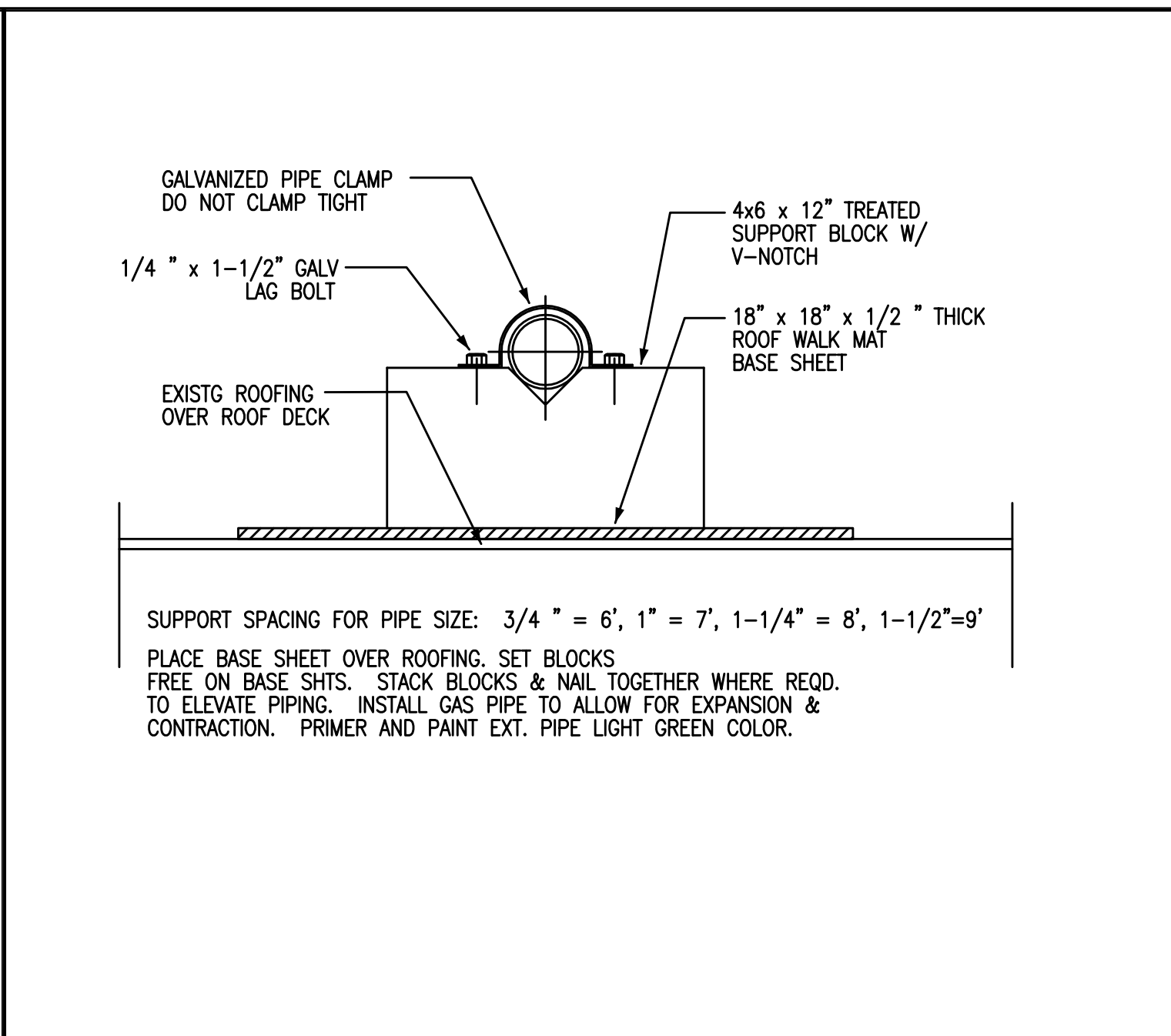
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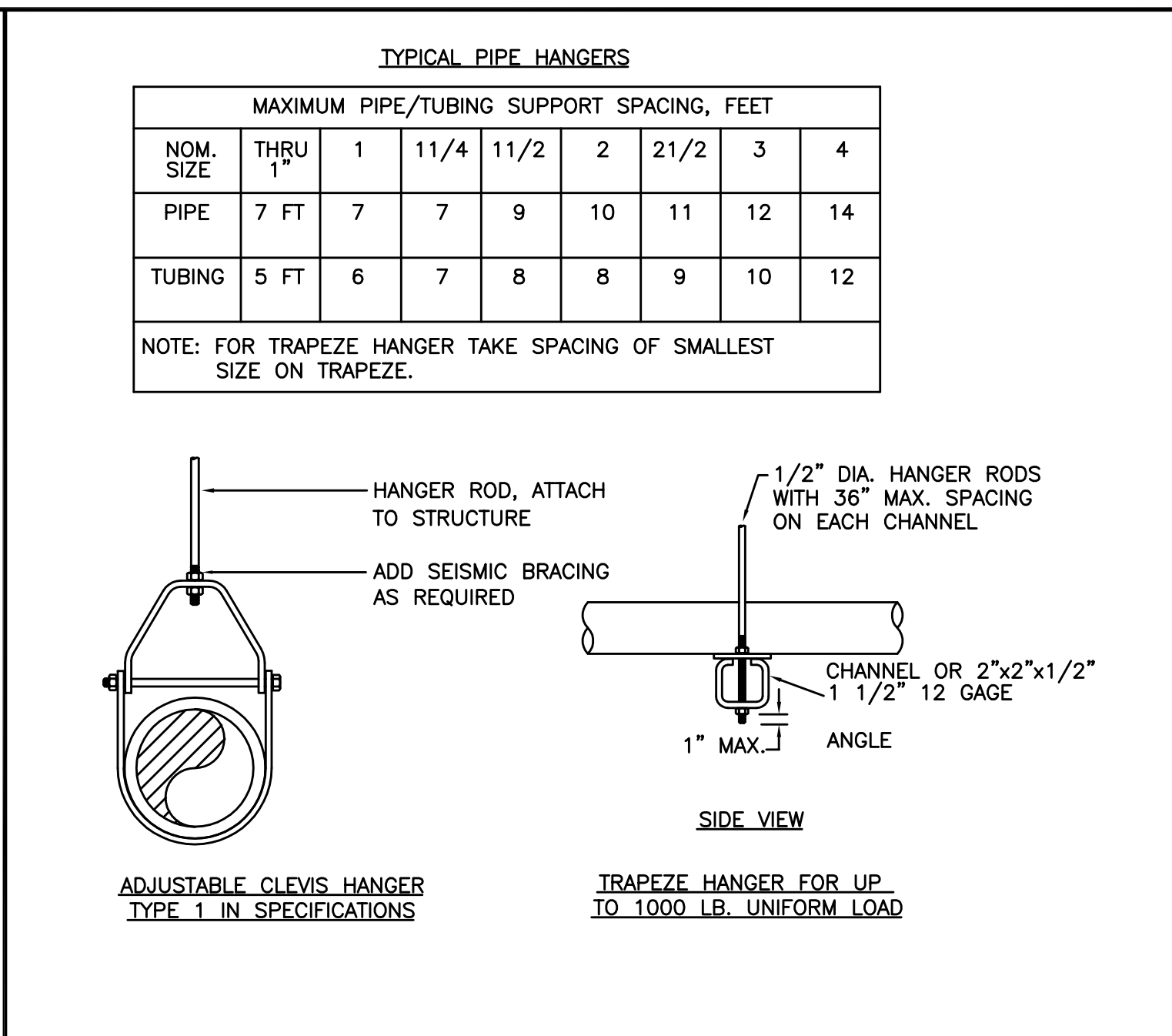
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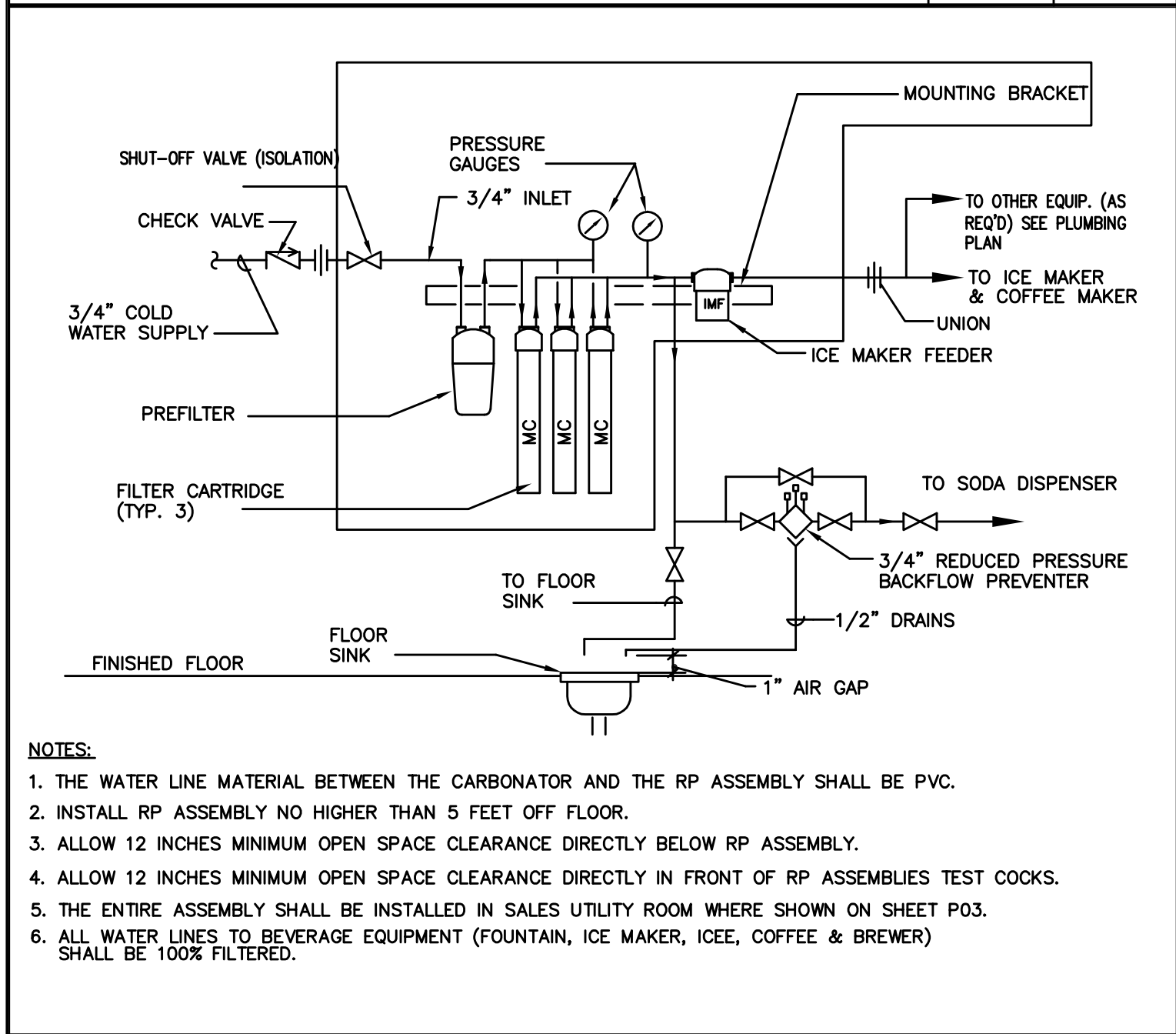
VENT TROUGH ROOF DETAIL N.T.S. 7



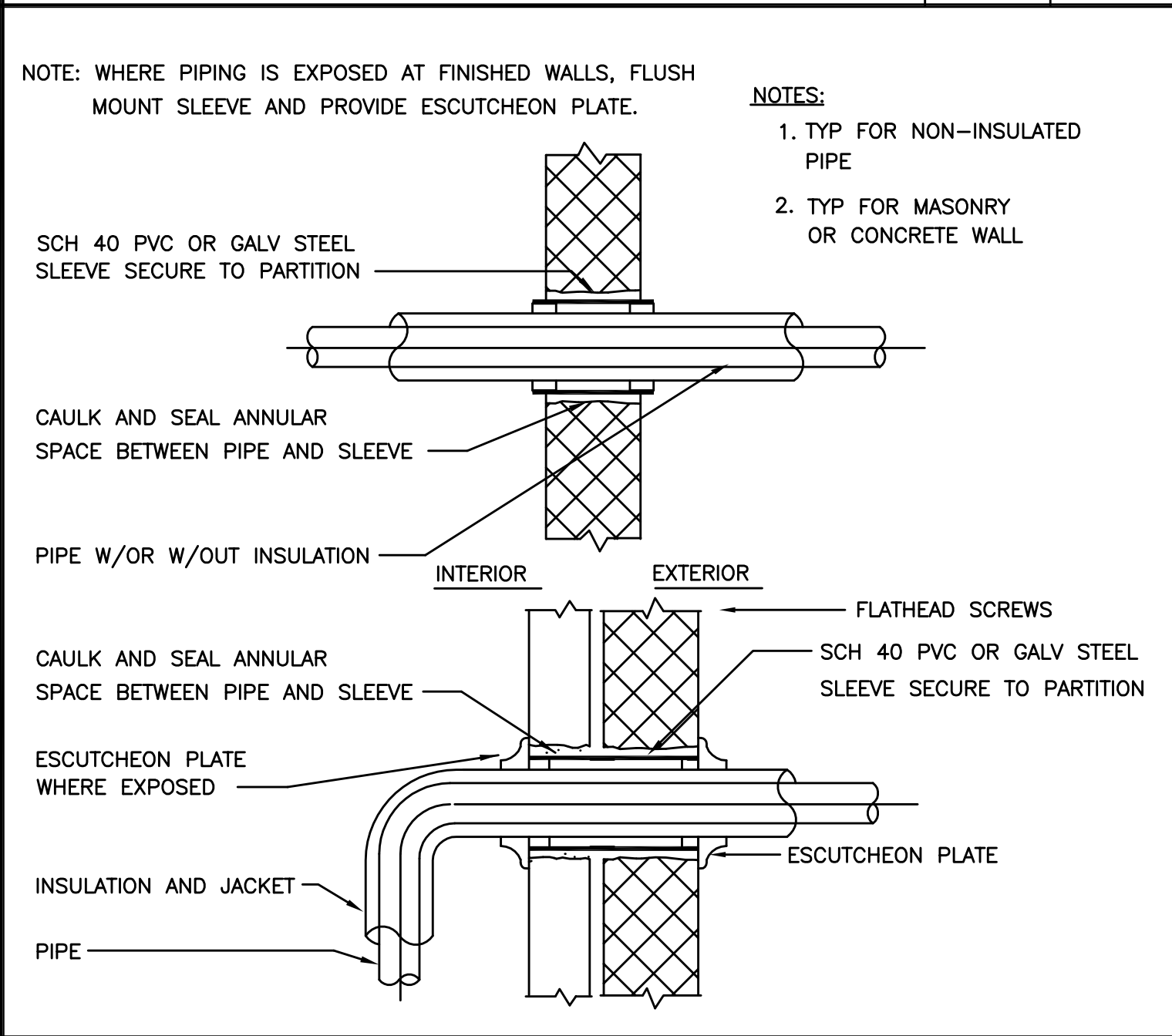
PIPE SUPPORT DETAIL N.T.S. 4



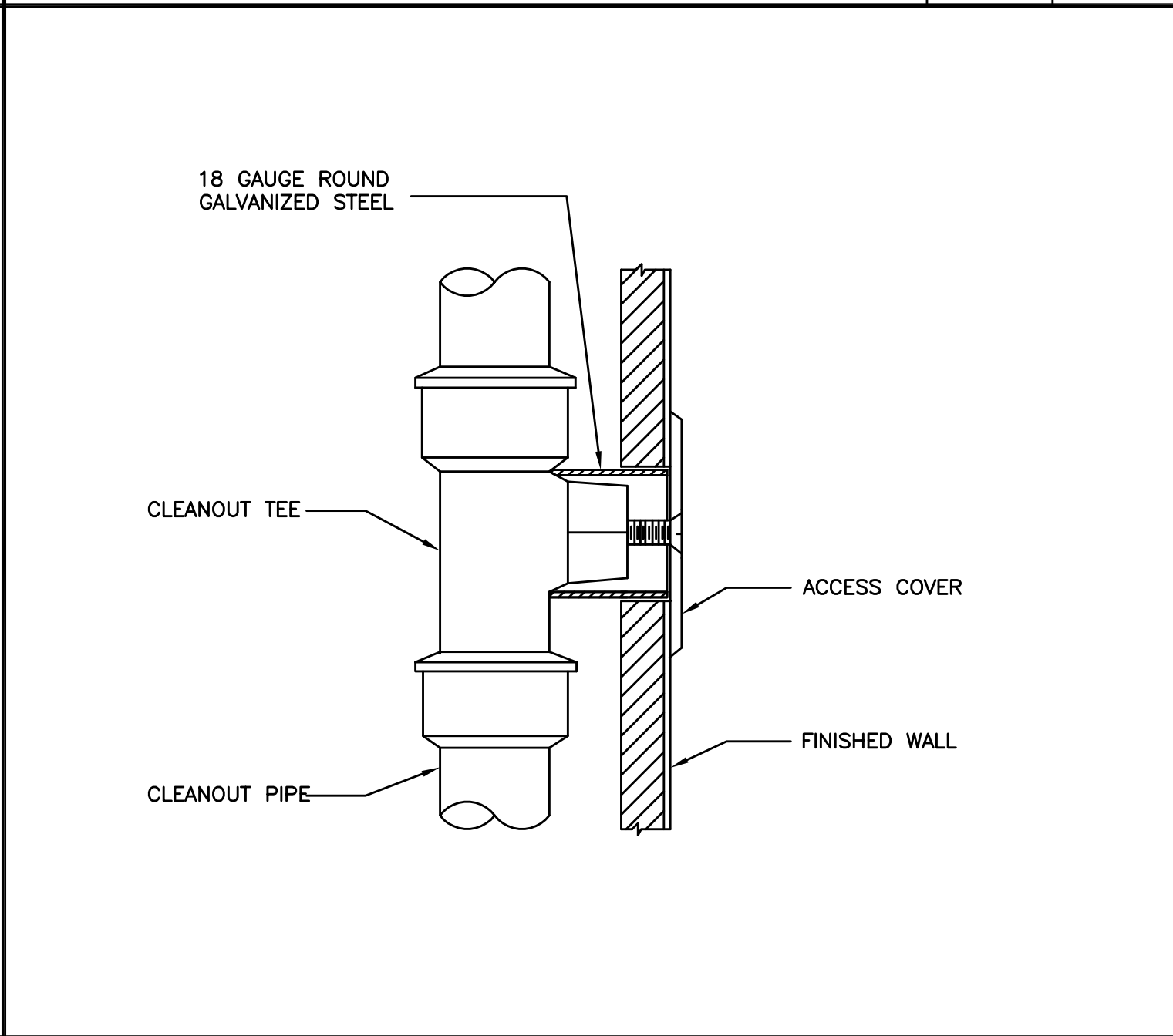
PIPE HANGER DETAIL #1 N.T.S. 1



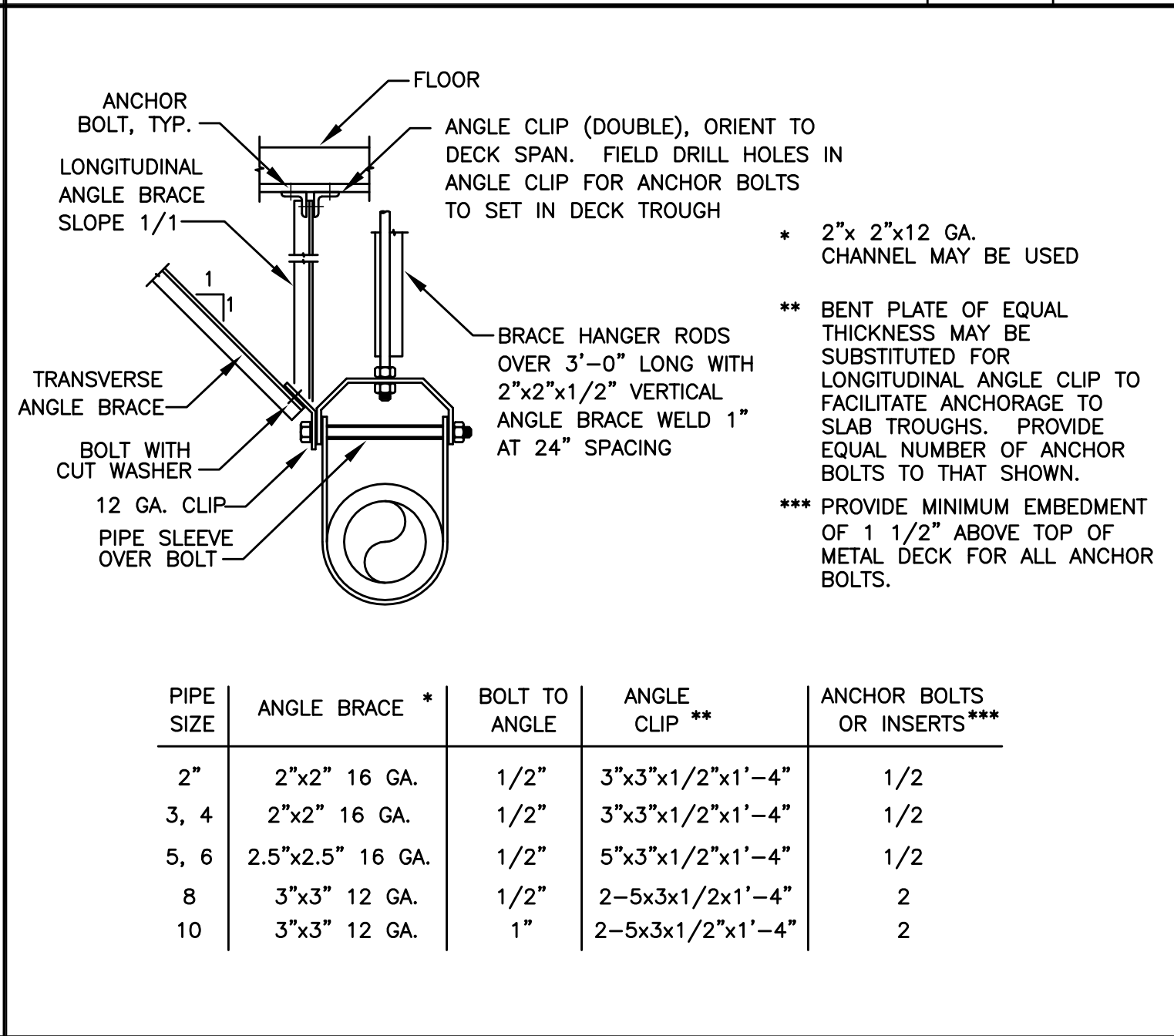
WATER FILTRATION SYSTEM N.T.S. 11



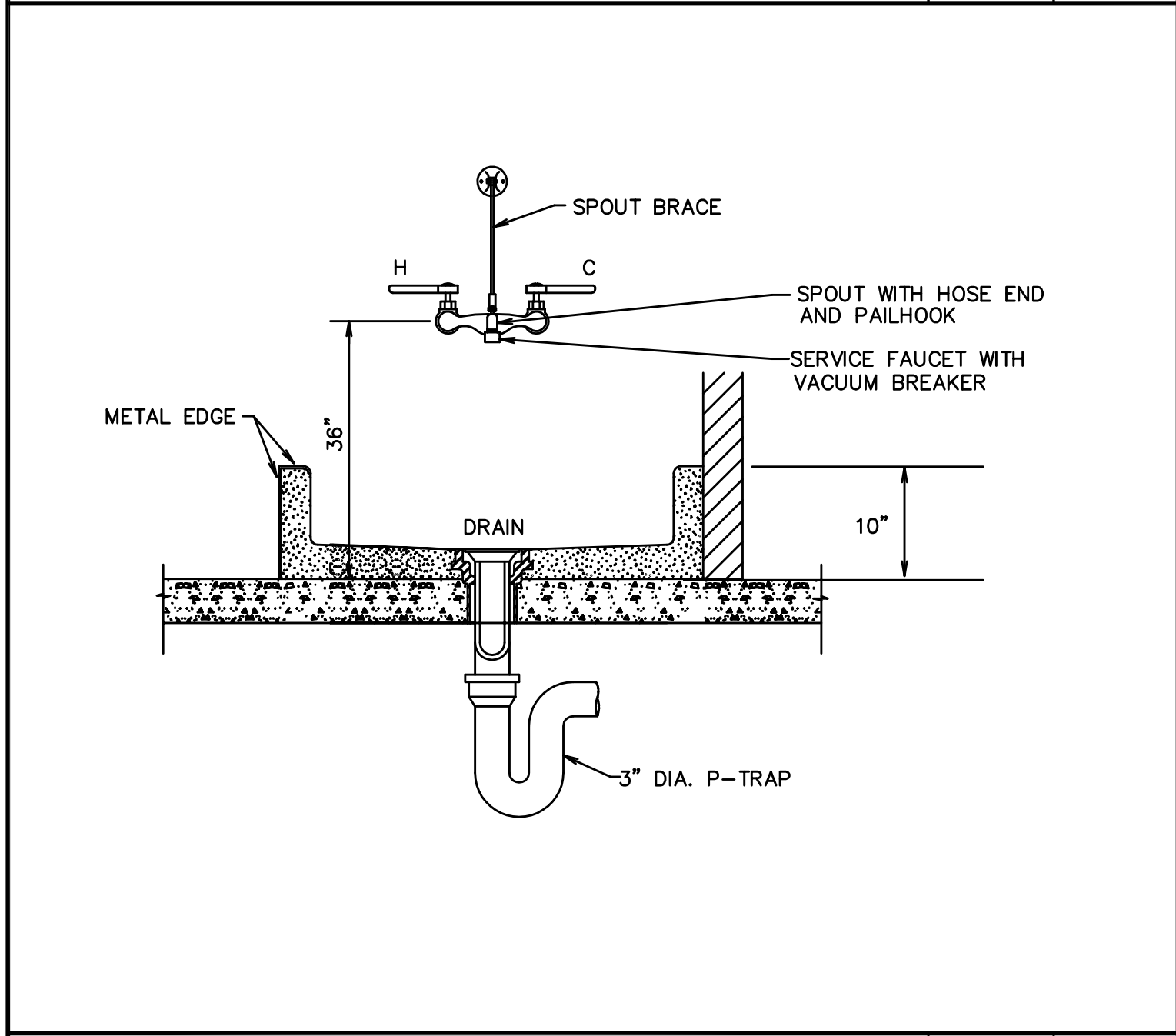
PIPE PENETRATION DETAIL #1 N.T.S. 8



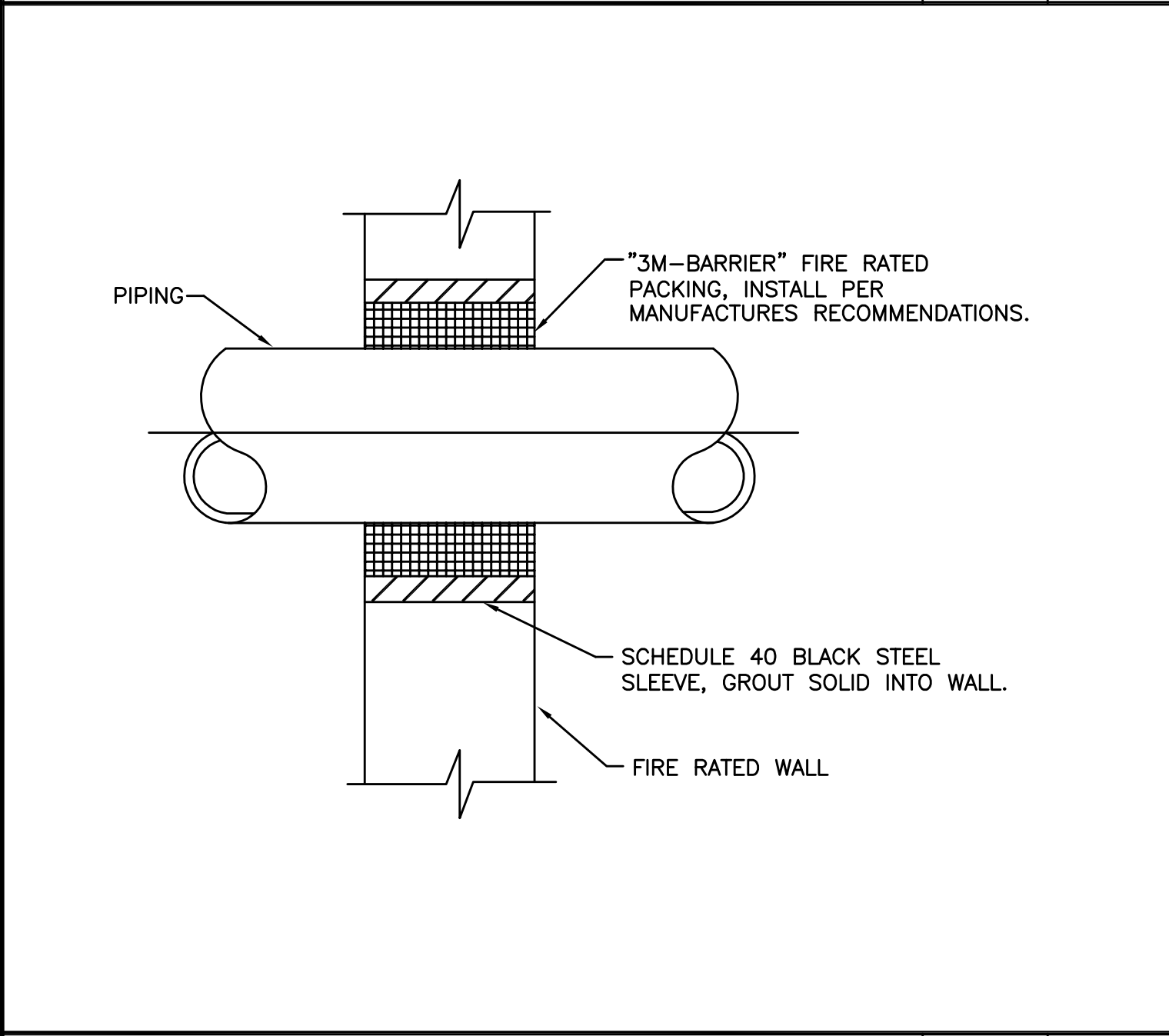
WALL CLEANOUT DETAIL N.T.S. 5



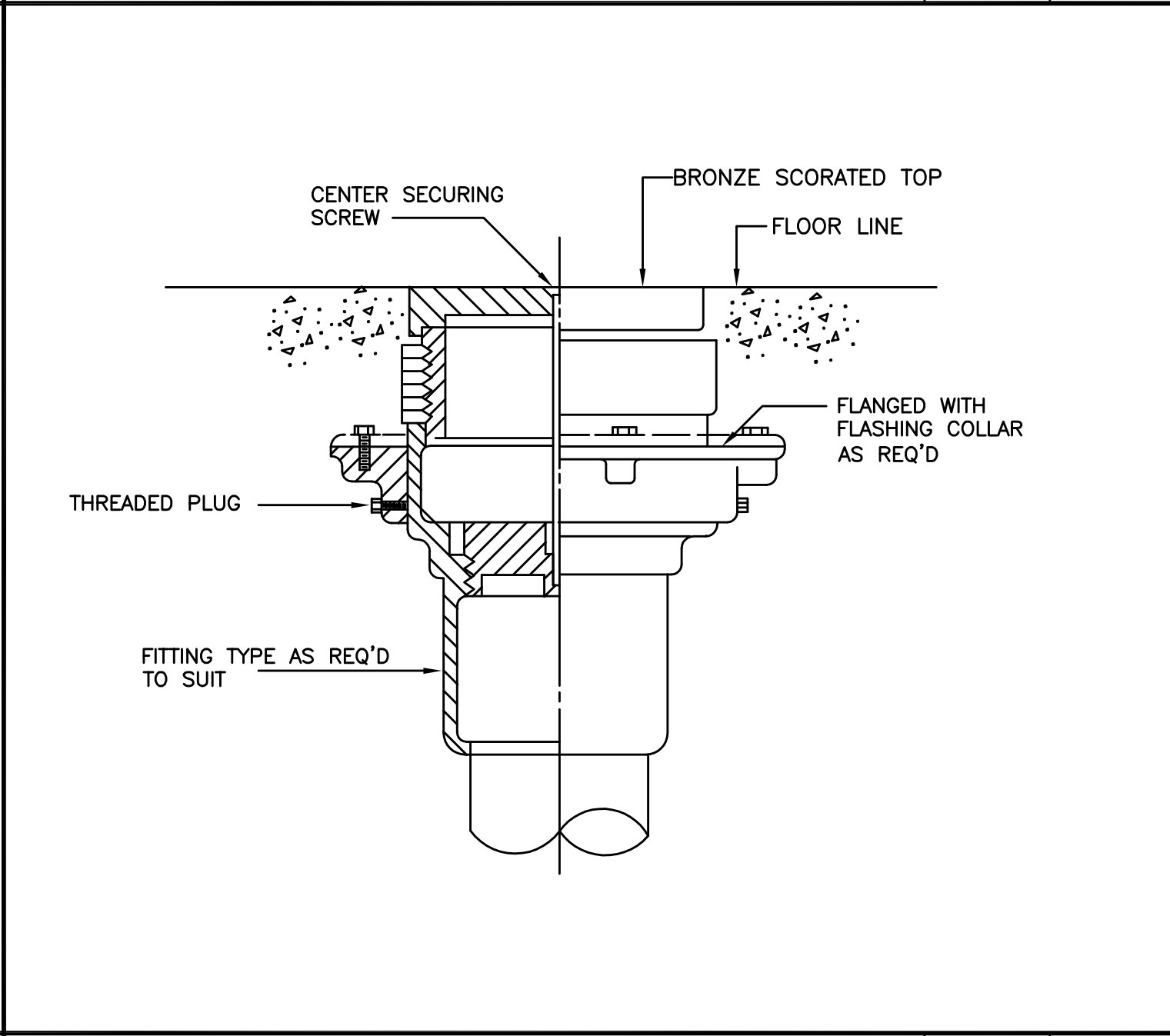
PIPE HANGER DETAIL #2 N.T.S. 2



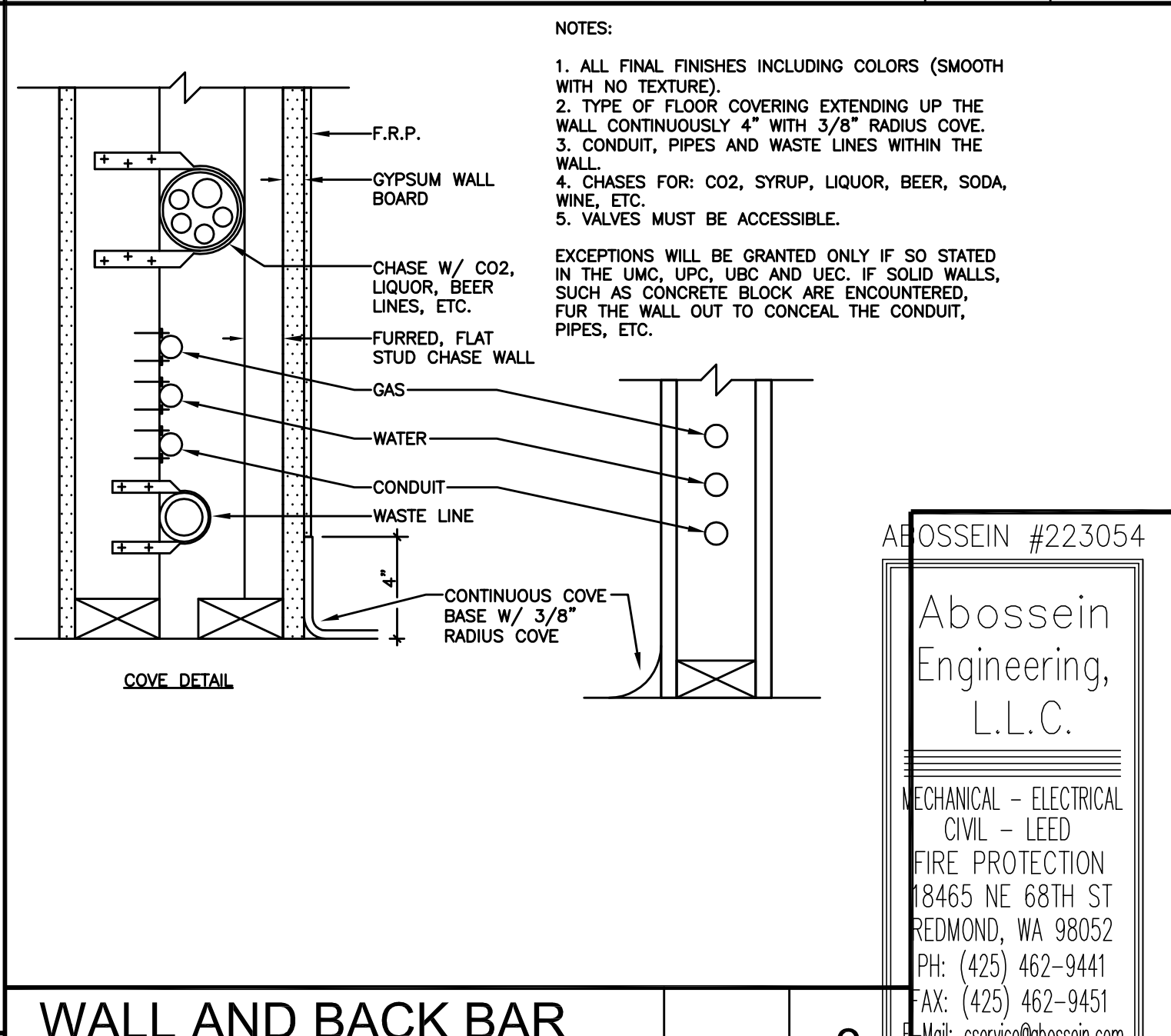
MOP SINK DETAIL N.T.S. 12



PIPE PENETRATION DETAIL #2 N.T.S. 9



FLOOR CLEANOUT DETAIL N.T.S. 6



WALL AND BACK BAR PIPING DETAIL N.T.S. 3

Barghausen Consulting Engineers, Inc.

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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN

@ HIGHWAY 512

PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY: ALLIANCE ZADN:

CHECKED BY: BP REPA:

DRAWN BY: ALLIANCE PM:

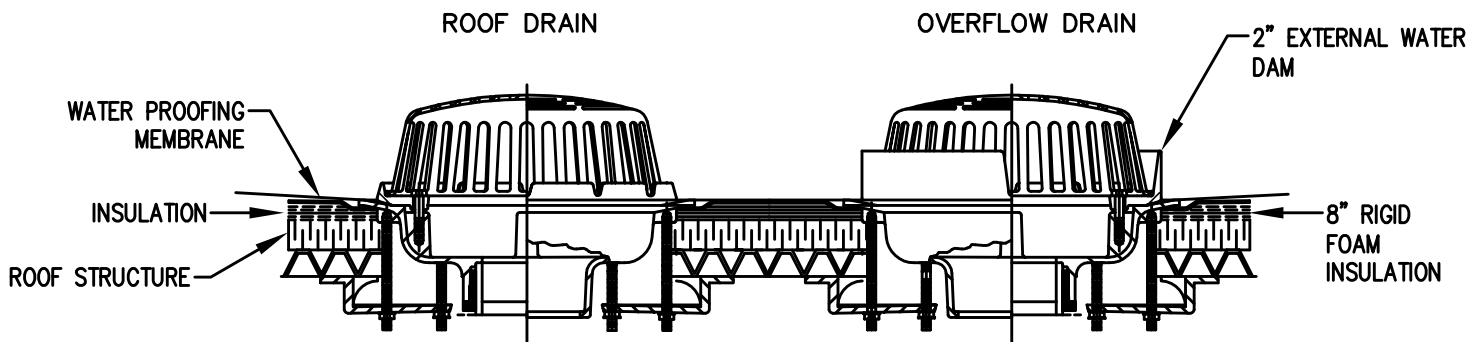
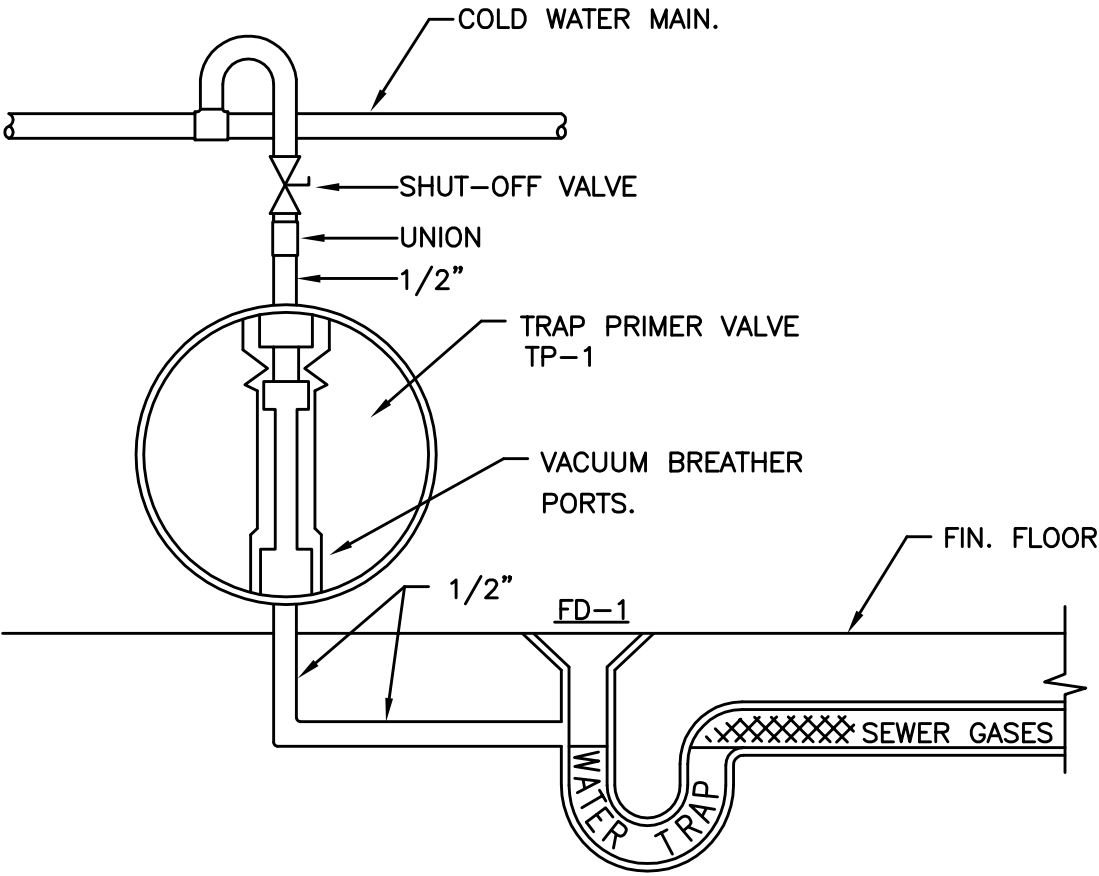
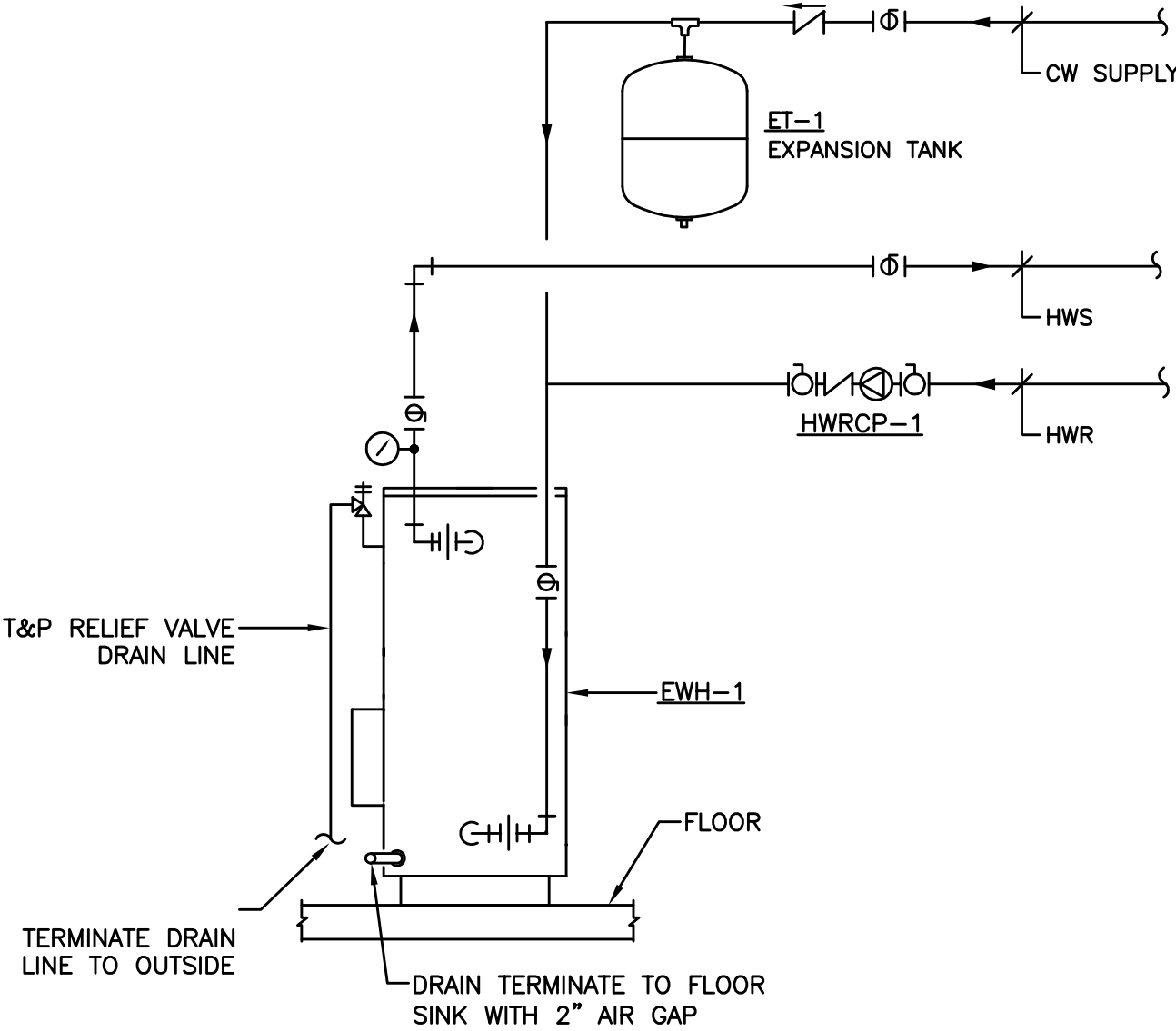
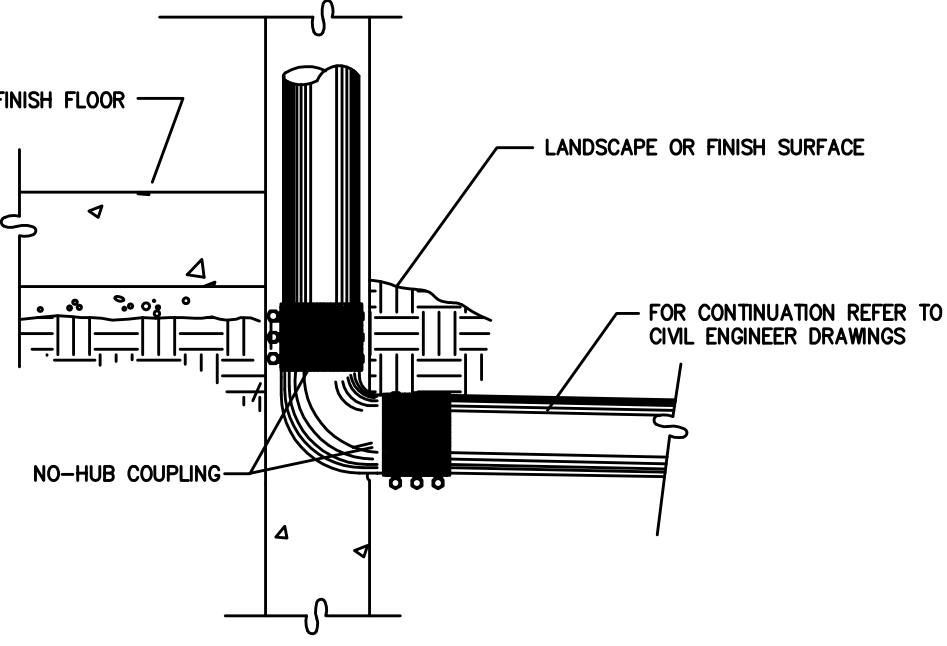
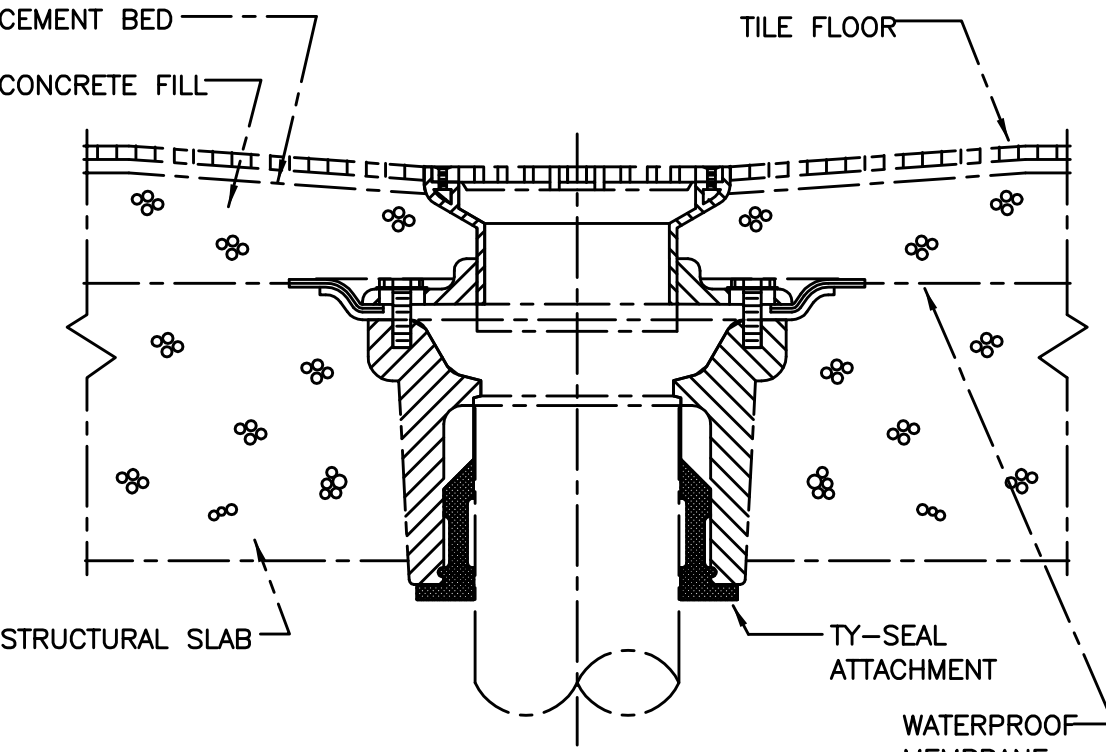
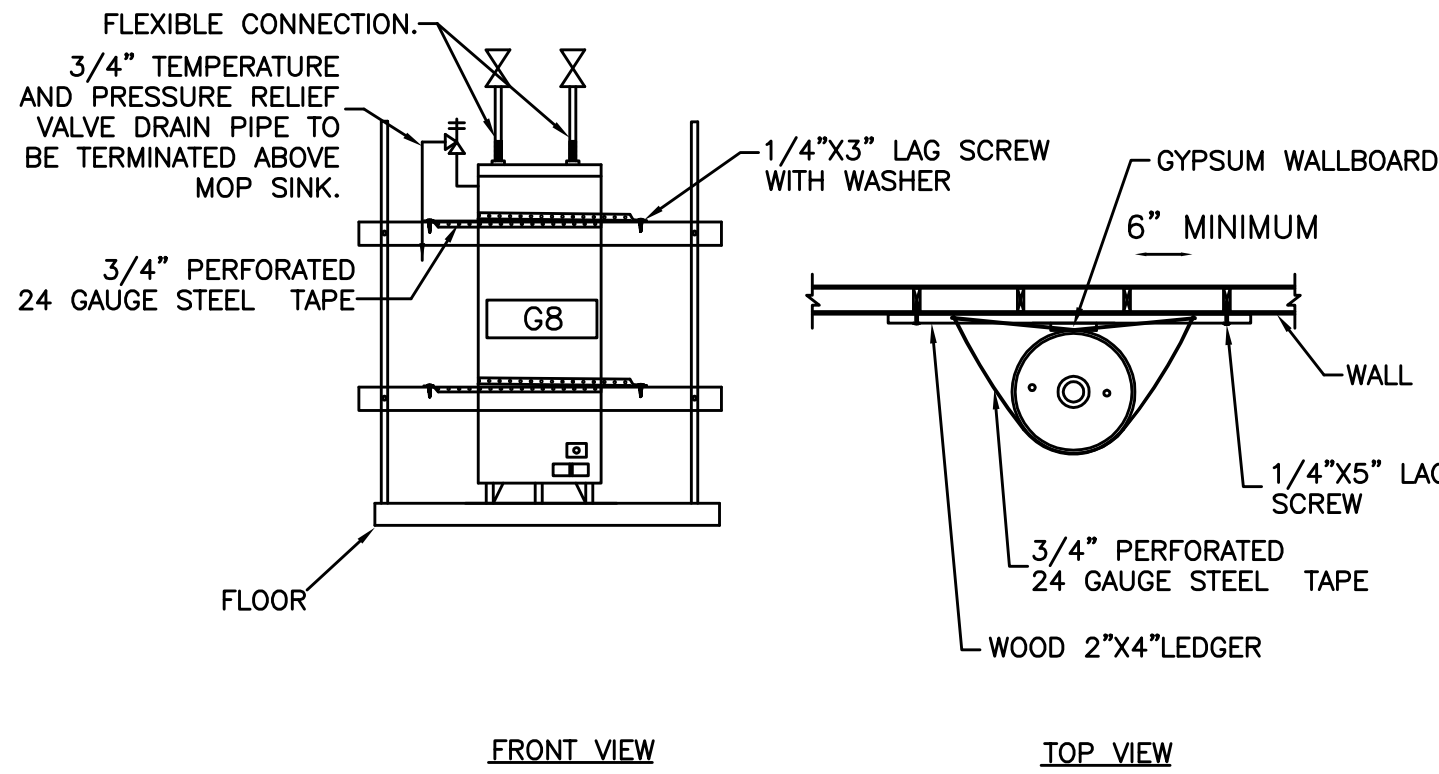
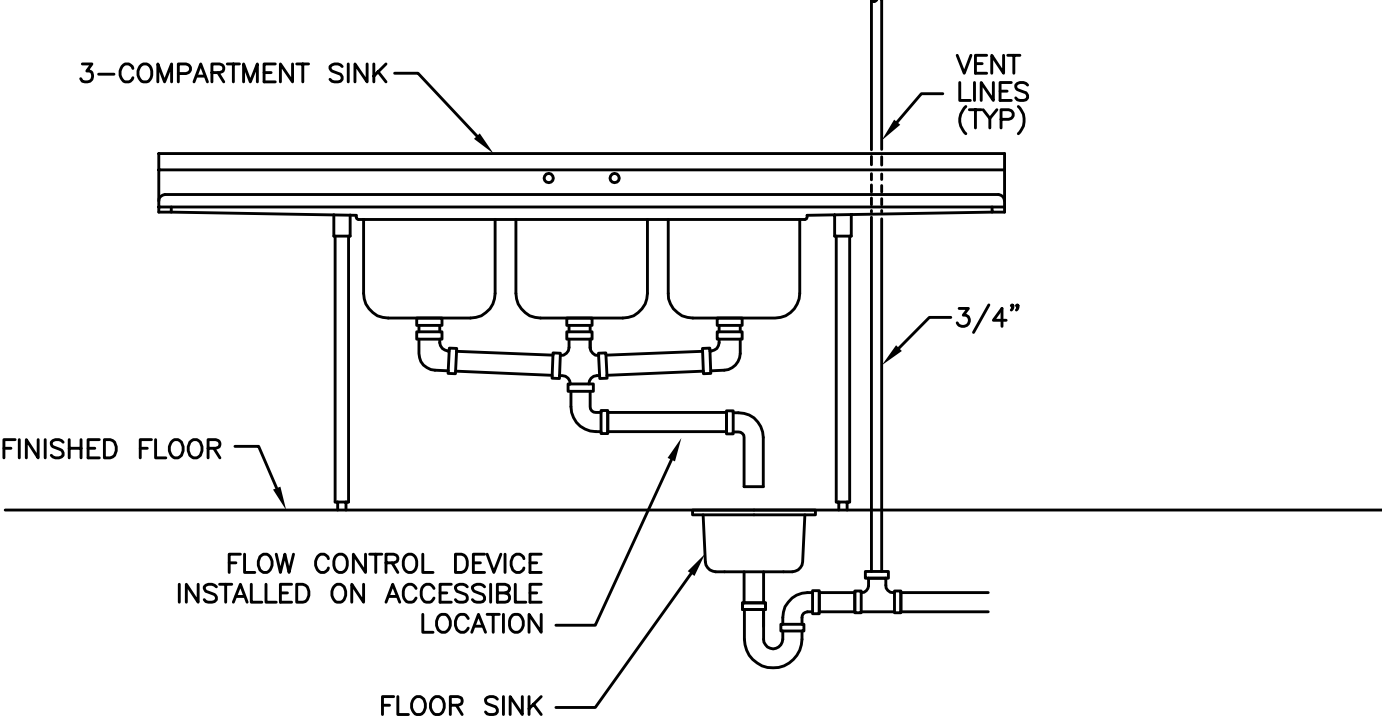
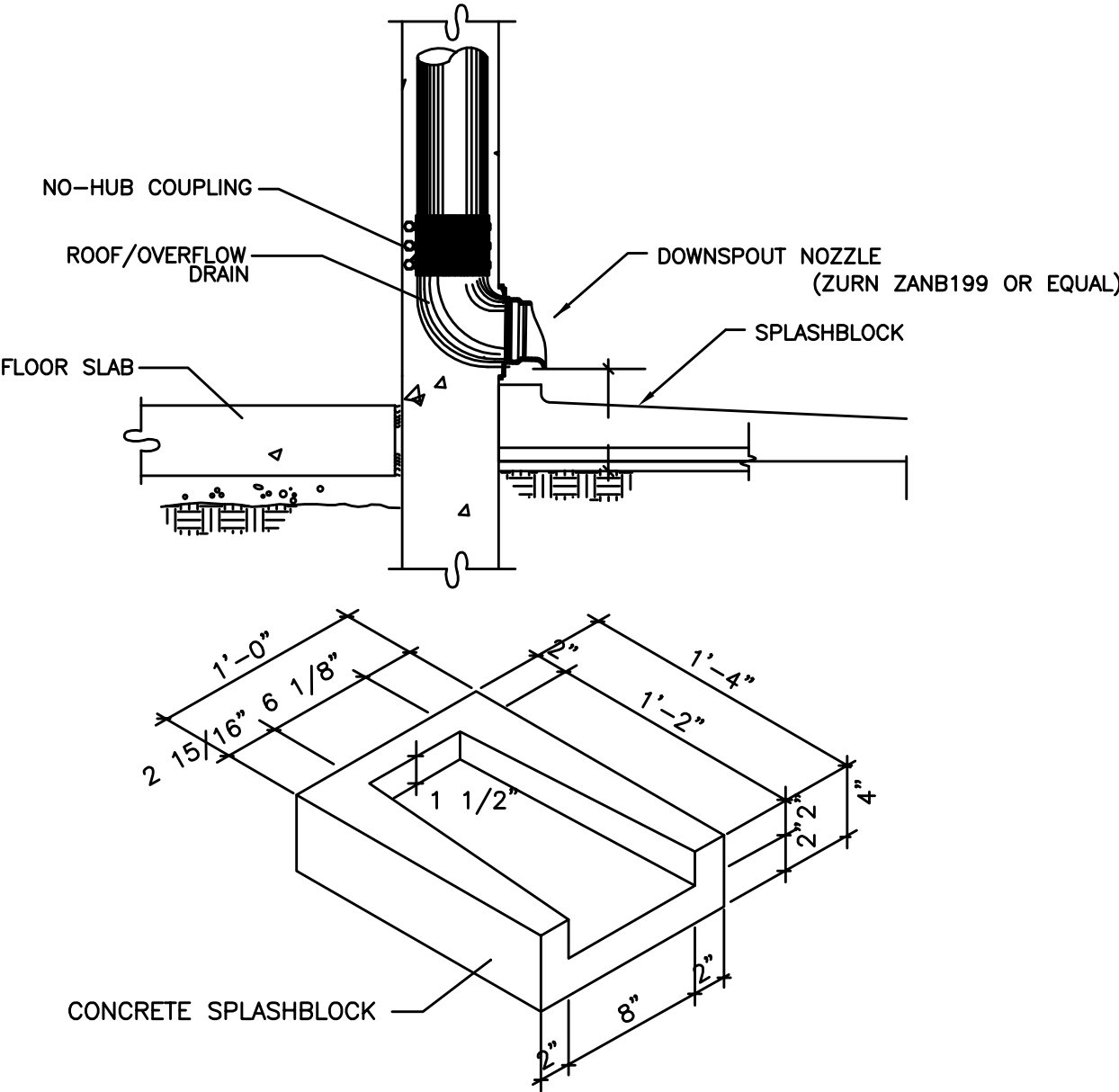
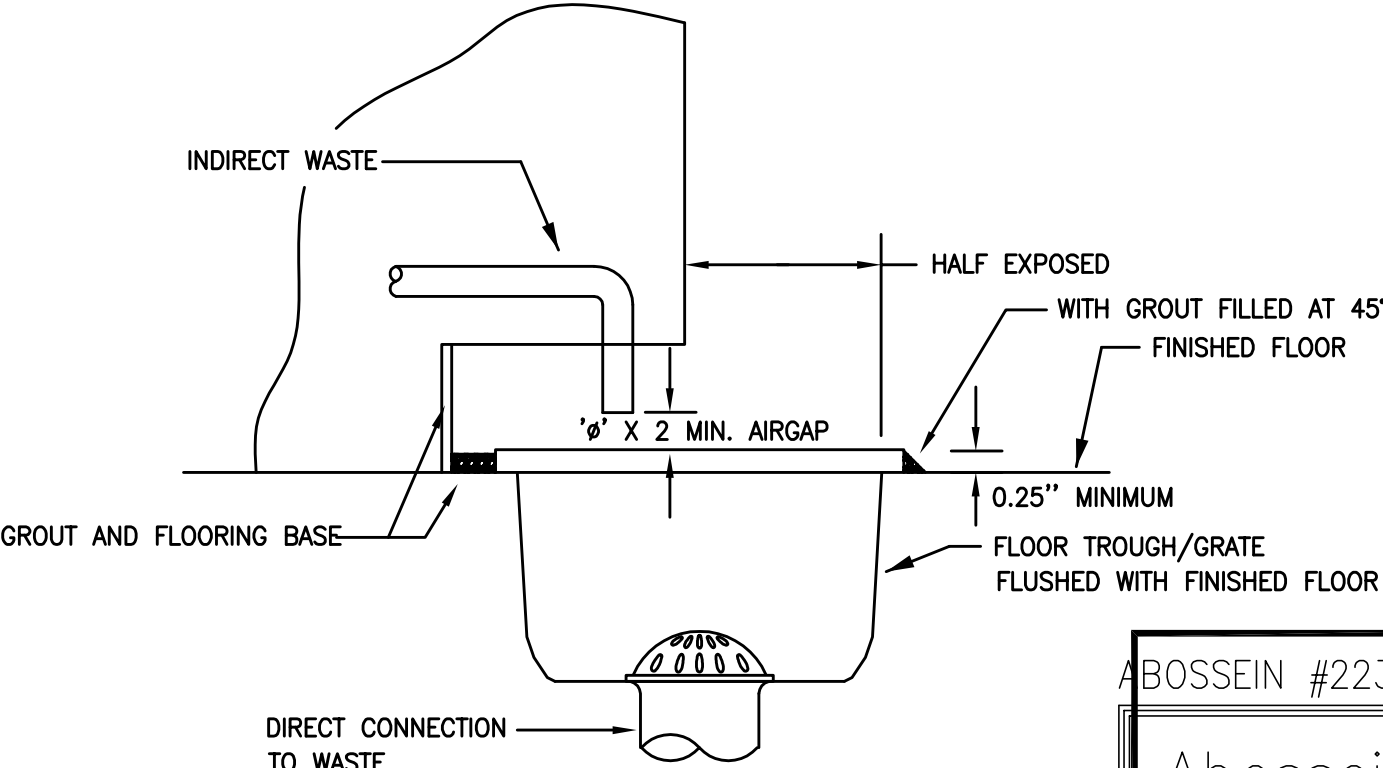
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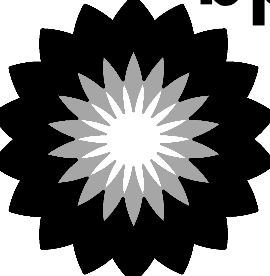
PLUMBING DETAILS - I

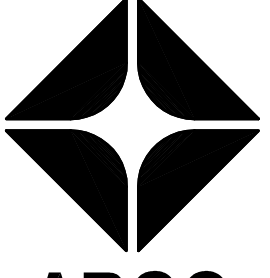
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						 <p>NOTES: 1. PLUMBING CONTRACTOR SHALL COORDINATE WITH STRUCTURAL ENGINEER AND ROOFING CONTRACTOR FOR ROOF DRAIN LOCATION AND INSTALLATION REQUIREMENTS. 2. ROOF DRAIN SHALL BE TOP CONNECT AND SUPPORT FROM NEAREST JOIST AND GIRDER. IF THERE ARE TWO ROOF DRAINS AT THE SAME LOCATION, LOCATE ON ONTO BOTH SIDE OF JOIST OR GIRDER. 3. ROOF DRAIN AND OVERFLOW TO BE APPROVED BY ROOFING CONTRACTOR PRIOR TO PURCHASE. 4. PROVIDE CLAMPING EXTENSION COLLAR TO ACCOMMODATE 8" RIGID FOAM INSULATION.</p>					
NOT USED	N.T.S.	10	NOT USED	N.T.S.	7	ROOF DRAIN DETAIL #1	N.T.S.	4	TRAP PRIMER DETAIL	N.T.S.	1
											
WATER HEATER SCHEMATIC DETAIL	N.T.S.	11	NOT USED	N.T.S.	8	ROOF DRAIN DETAIL #2	N.T.S.	5	FLOOR DRAIN DETAIL	N.T.S.	2
<p>NOTE: WATER HEATER STRAPPING SHALL BE AT POINTS WITHIN THE UPPER ONE-THIRD (1/3) AND LOWER ONE-THIRD (1/3) OF ITS VERTICAL DIMENSIONS. AT THE LOWER POINT, A MINIMUM DISTANCE OF FOUR (4) INCHES SHALL BE MAINTAINED ABOVE THE CONTROLS WITH THE STRAPPING.</p> 									 <div> <div> <div>BOSSSEIN #223054</div> <div> <div>Abossein</div> <div>Engineering,</div> <div>L.L.C.</div> </div> <div> <div>MECHANICAL - ELECTRICAL</div> <div>CIVIL - LEED</div> <div>FIRE PROTECTION</div> <div>18465 NE 68TH ST</div> <div>REDMOND, WA 98052</div> <div>PH: (425) 462-9441</div> <div>FAX: (425) 462-9451</div> <div>E-Mail: cservice@abossein.com</div> <div>www.abossein.com</div> </div> </div> </div>		
SEISMIC STRAPPING DETAIL	N.T.S.	12	3-COMPARTMENT SINK DETAIL	N.T.S.	9	ROOF OVERFLOW DRAIN DETAIL #3	N.T.S.	6	FLOOR SINK DETAIL	N.T.S.	3

CLIENT:





ARCO

BP WEST COAST PRODUCTS, LLC



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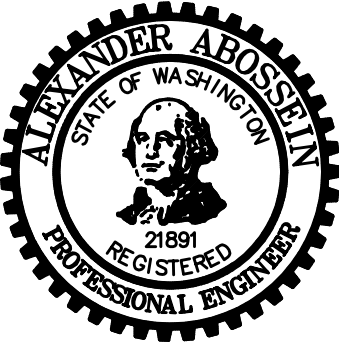
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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN

@ HIGHWAY 512

PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:

ALLIANCE ZADN:

CHECKED BY:

BP REPA:

DRAWN BY:

ALLIANCE PM:

VERSION:

PROJECT NO:

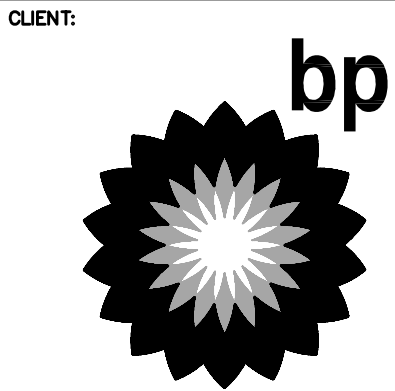
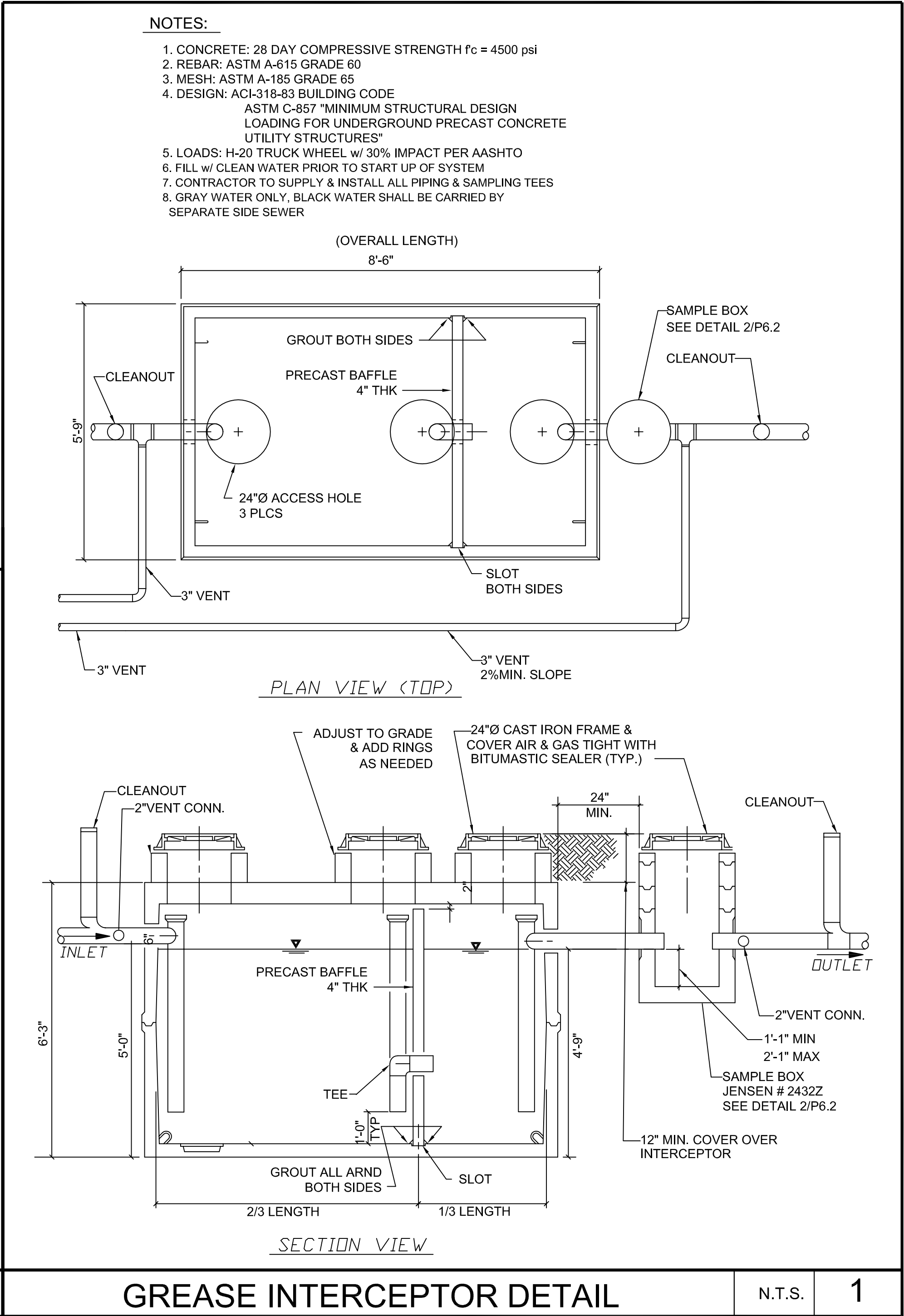
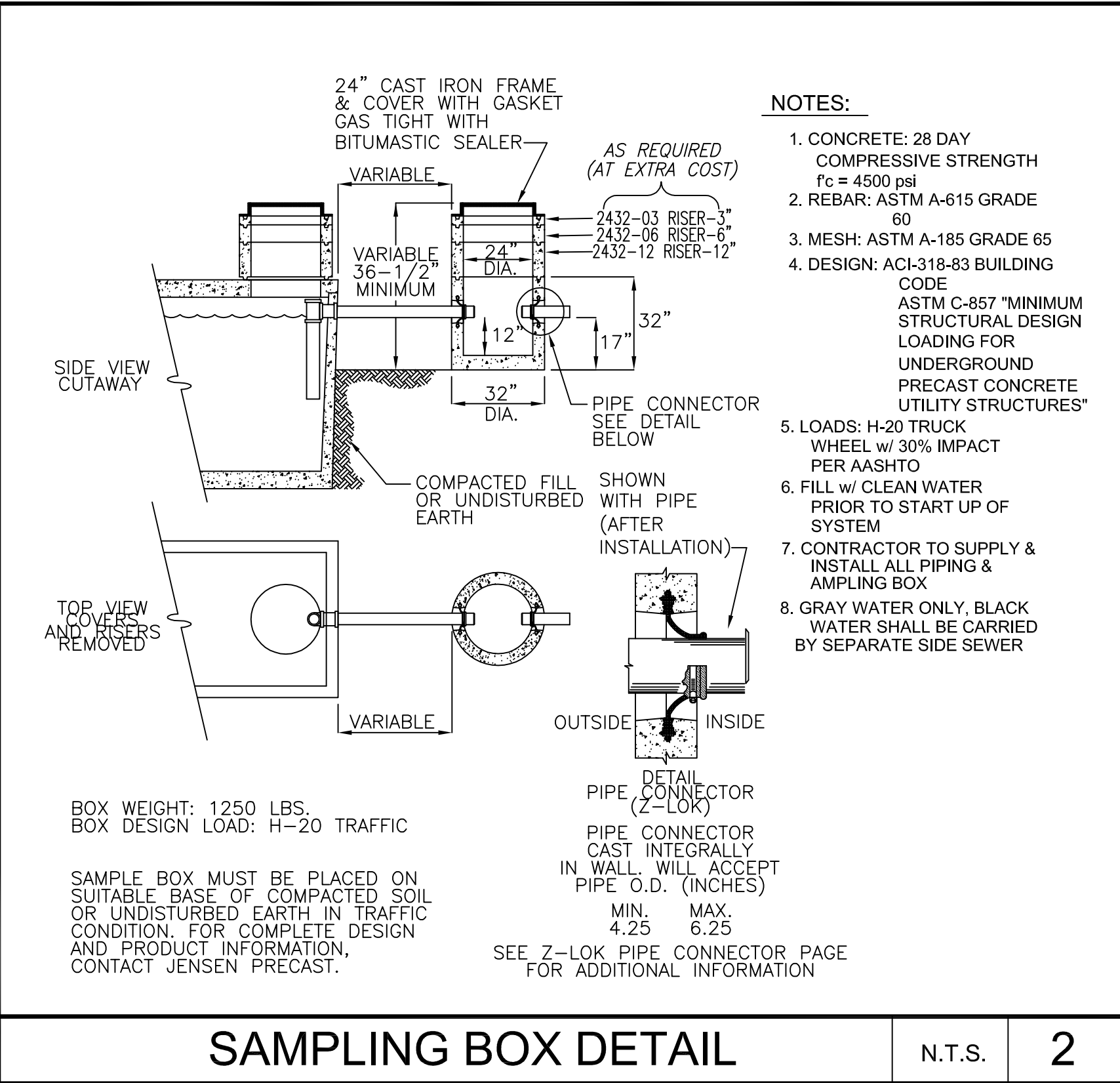
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PLUMBING

DETAILS - II

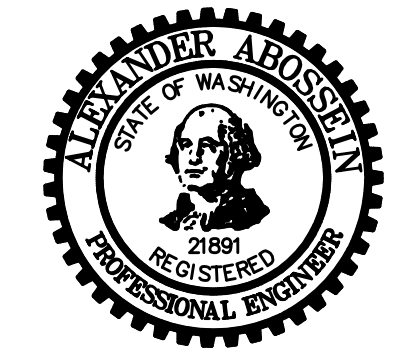
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Consulting Engineers, Inc.

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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADN:
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DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO:
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DRAWING TITLE:

**PLUMBING
DETAILS - III**

SHEET NO:

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Abosseini
Engineering,
L.L.C.

MECHANICAL - ELECTRICAL
CIVIL - LEED
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18465 NE 68TH ST
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PH: (425) 462-9441
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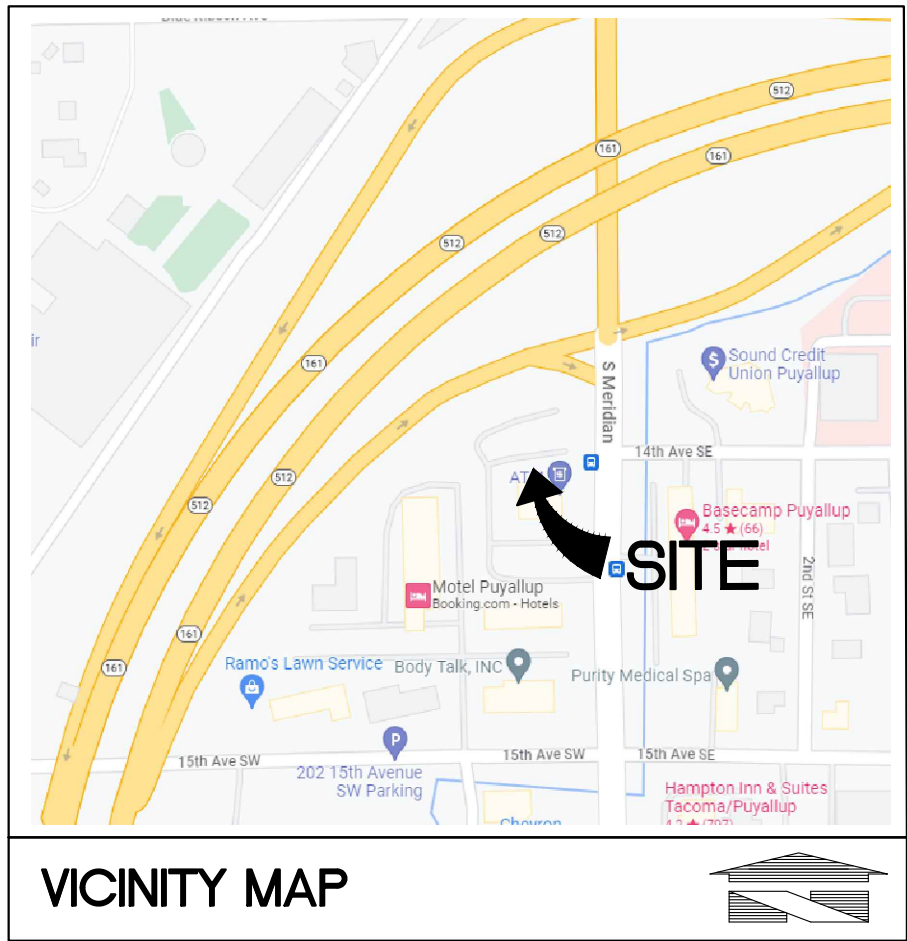


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FUELING CANOPY W/6 MPD's

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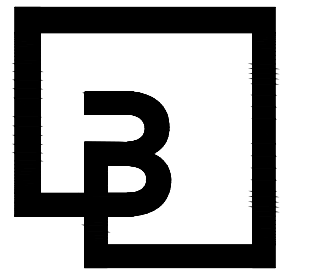
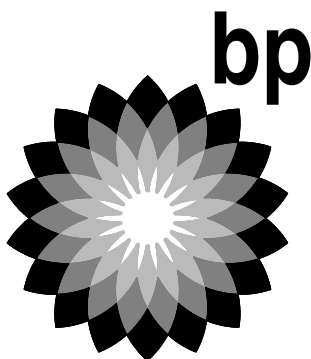
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PUYALLUP, WASHINGTON



DRAWING INDEX

G.0.0	TITLE SHEET AND DRAWING INDEX
G.0.2.0	UNDERGROUND TANK AND PIPING SITE PLAN AND INSTALLATION NOTES
G.0.2.1	TANK & PIPING SCOPE OF WORK & GENERAL NOTES (FRP 1 OF 2)
G.0.2.2	TANK & PIPING SCOPE OF WORK & GENERAL NOTES (FRP 2 OF 2)
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G.0.6.1	DESIGN INTENT: NEW VENT STACK INSTALLATION DETAILS
G.0.7.1	TANK FILL & VAPOR RISER STATIC GROUNDING DETAILS (STANDARD)
M.5.1.01	TANK AND PIPING MATERIALS LIST (1 OF 2)
M.5.1.02	TANK AND PIPING MATERIALS LIST (2 OF 2)
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M.5.1.50	EMERGENCY SHUTDOWN SCHEMATIC FUELING CONTROLS W/VFC's

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Consulting Engineers, Inc.**

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DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

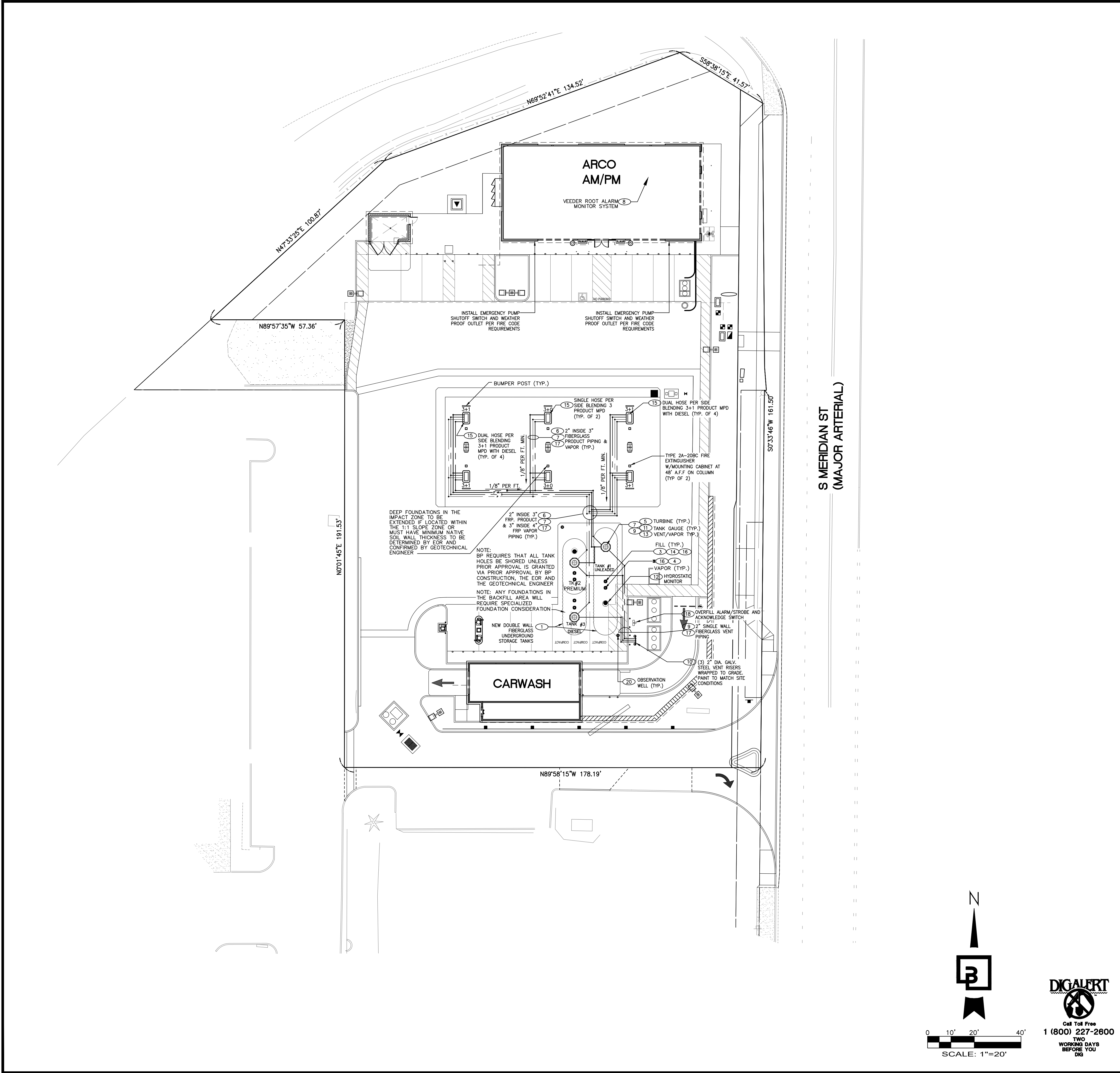
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VERSION: V-15.0	PROJECT NO: 21730
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**TITLE SHEET &
DRAWING INDEX**

SHEET NO:

G.0.0



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bp

ARCO

BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.

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SEAL:

HAL P. GRUBB
STATE OF WASHINGTON
25975
PROFESSIONAL ENGINEER
10/4/2023

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF	ALLIANCE ZONE:
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VERSION: V-15.0	PROJECT NO:
01/01/2023	21730

DRAWING TITLE:

**UNDERGROUND TANK AND PIPING
SITE PLAN
AND INSTALLATION NOTES**

SHEET NO:

G.0.2.0

PIPING LEGEND

----- FIBERGLASS PRODUCT PIPING
----- FIBERGLASS VAPOR RECOVERY PIPING
----- FIBERGLASS VENT PIPING

NOTE:
CONTRACTOR ASSUMES RESPONSIBILITY TO ASSURE THAT THE OPERABLE SYSTEM MEETS THE DESIGN INTENT AND THE CONTRACTOR IS PERMITTED TO ADJUST PIPING LOCATIONS BASED ON ACTUAL FIELD CONDITIONS AND INSTALLATION TECHNIQUES.

- PRODUCT, VAPOR AND VENT PIPING IS TO SLOPE TOWARD TANK 1/8" PER FOOT MINIMUM, 1/4" PER FOOT PREFERRED. IF INSTALLED, SIPHON PIPING TO SLOPE 1/4" PER FOOT.
- SECONDARY CONTAINMENT PIPING IS SHOWN BY NOTE ONLY, NOT GRAPHICALLY. ALL PRODUCT PIPING TO BE DOUBLE CONTAINMENT PIPE. VENT AND VAPOR RECOVERY SHALL BE SINGLE WALL.

GENERAL NOTES

- INSTALL (1) 25K REGULAR UNLEADED, ONE (1) 12K/10K PREMIUM UNLEADED/DIESEL DUAL COMPARTMENT "CONTAINMENT SOLUTIONS" DOUBLE WALL FIBERGLASS TANKS WITH CONTINUOUS MONITORING OF HYDROSTATIC ANNULAR SPACES BY "VEEDER ROOT" TLS-450 PLUS TANK AND PIPING MONITOR AND ALARM SYSTEM. ALL TANK SUMPS SHALL BE INDIVIDUALLY CONTINUOUSLY MONITORED BY "VEEDER ROOT" LIQUID SENSORS TIED INTO THE TLS-450 PLUS TANK & PIPING MONITOR SYSTEM. TANKS TO BE SET MIN. 60" BELOW FINISH GRADE. TANK INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- INSTALL A CONCRETE SLAB OVER TANKS. SURFACE WATER SHALL BE DIVERTED AWAY FROM EACH MANHOLE BY FORMING A CONCRETE CROWN WITH A 1-1/2" DROP IN 18" FROM THE EDGE OF THE MANHOLE RING TO THE SURROUNDING SLAB ELEVATION. CONSTRUCT SLAB PER CIVIL SLAB INSTALLATION DETAILS AND SPECIAL REQUIREMENTS SHOWN ON DETAILS.
- INSTALL DIRECT BURY FILL SPILL BUCKET 5 GALLON WITH ADAPTERS AND CAPS.
- INSTALL DIRECT BURY VAPOR SPILL BUCKET 5 GALLON WITH ADAPTERS AND CAPS.
- INSTALL ONE (1) 2HP VARIABLE SPEED TURBINES IN UNLEADED TANK, ONE (1) 2HP IN PREMIUM TANK & ONE (1) 2HP IN DIESEL TANK. TURBINE SYSTEMS TO BE EQUIPPED WITH 3 GPH ELECTRONIC LINE LEAK DETECTION. LEAK DETECTORS ARE TO BE TESTED FOR THE 3 GPH LEAK DETECTION PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO PROVIDE TEST DATA AT THE TIME OF PUNCH LIST AS WELL AS INCLUDE IN CLOSE OUT BINDER. SET TURBINE INTAKES AT 5" FROM BOTTOM OF TANKS. TURBINES TO BE EQUIPPED WITH INTAKE FILTER SCREENS. CONTRACTOR TO LABEL TURBINES AS TO WHICH TURBINE THEY SERVE. GREEN CONTROLLER LIGHTS ARE TO GO OUT WHEN TURBINES ARE OFF OR LOSE POWER.
- INSTALL 2" INSIDE 3" DOUBLE WALL FIBERGLAS PRODUCT SUPPLY LINES TO DISPENSERS. PIPING SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS. PIPING SHALL BE INSTALLED WITH A MINIMUM SLOPE OF 1/8" PER FOOT FROM THE FURTHEST DISPENSER SUMP DOWN TO THE TURBINE SUMPS. CONTRACTOR TO INSTALL TRACER TAPE WITH PRODUCT PIPING. TESTING OF PRODUCT LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION. TESTING OF VAPOR LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION. TESTING OF VAPOR LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION. TESTING OF VAPOR LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION. TESTING OF VAPOR LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION.
- INSTALL "VEEDER ROOT" TANK AND LINE ALARM CONTROL PANEL MODEL # TLS-450PLUS IN BUILDING AT NORMALLY OCCUPIED LOCATION IN BUILDING. SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR EXACT LOCATION.
- INSTALL A SINGLE 2" FRP VENT LINE FOR EACH UNDERGROUND STORAGE TANK. SLOPE 1/4" PER FOOT (1/8" PER FOOT MINIMUM) TO TANKS AS SHOWN. CONTRACTOR TO INSTALL TRACER TAPE WITH VENT PIPING.
- TERMINATION POINT OF TANK VENTS TO BE A MINIMUM OF 12' ABOVE GRADE AND NOT WITHIN 5' FROM ANY BUILDING OPENING OR PROPERTY LINE THAT CAN BE BUILT UPON. VENT RISERS SHALL BE INSTALLED IN ACCORDANCE WITH UNIFORM FIRE CODE REQUIREMENTS. VERIFY LOCAL REGULATIONS FOR ADDITIONAL EQUIPMENT OR INSTALLATION REQUIREMENTS.
- INSTALL A SINGLE 1" RIGID GALVANIZED CONDUIT FOR EACH NEWLY INSTALLED TURBINE PUMP.
- INSTALL DUAL FLOAT TANK ANNULAR SPACE HYDROSTATIC MONITORING SENSORS. SEE DETAILS FOR CONDUIT LOOPING.
- INSTALL .1 GPH MAG PROBE TANK LEVEL GAUGES AT TURBINE SUMP AS SHOWN.
- TANKS SHALL BE PROPERLY MARKED AND TAGGED WITH STANDARD API IDENTIFICATION MARKINGS AT FILL MANHOLES.
- INSTALL (4) FOUR WAYNE OVATION SERIES 3+1 & (2) TWO 3+0 DISPENSERS TO BE FITTED WITH STAGE II HOSES, NOZZLES AND BREAKAWAY VALVES PER LOCAL REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR INSTALLING HOSES, NOZZLES AND BREAKAWAYS. INSTALL UNDER DISPENSER CONTAINMENT INCLUDING PRODUCT SHEAR VALVES AND MONITORING SENSORS. START UP BY MANUFACTURER REPRESENTATIVE. GENERAL CONTRACTOR TO PURGE LINES WITH A MINIMUM OF 200 GALLONS THROUGH EACH HOSE NOZZLE. ANY AIR POCKETS OR START UP PROBLEMS DUE TO IMPROPER INSTALLATION OR INCORRECT WIRING THAT DESTROYS ELECTRONICS WILL BE BILLED BACK TO THE CONTRACTOR. AFTER PURGING THE PRODUCT LINES OF AIR AND BEFORE VAPOR RECOVERY TESTING, CONTRACTOR IS TO REPLACE THE FACTORY INSTALLED GASOLINE FILTERS WITH NEW FILTERS.
- FILL AND STAGE I VAPOR RECOVERY RISERS & ANNULAR RISER SHALL BE GROUNDED TO PREVENT STATIC DISCHARGE DURING FILLING OPERATIONS. SEE DWG. G.0.2.1 FOR STANDARD DETAILS.
- ALL NEW PIPING AND TANKS TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS.
- INSTALL OVERFILL ALARM & ACKNOWLEDGMENT SWITCH, AND ESD IN LOCATION SHOWN. ALARM AND SWITCH TO BE LOCATED TO PROVIDE AN UNSTRUCTURED NEW TO TRUCK DRIVER. PROVIDE BOLLARD PROTECTION OF FREE STANDING POLE. SEE WIRING DIAGRAM AND DETAIL FOR MOUNTING REQUIREMENTS.
- FINAL FACILITY EQUIPMENT LOCATIONS TO BE APPROVED BY DISTRIBUTION TERMINAL MANAGER PRIOR TO SUBMITTAL FOR PERMITS TO ENSURE CLEAR AND SAFE ACCESS TO THE UNDERGROUND TANKS FOR UNLOADING OPERATIONS.
- INSTALL (2) TWO OBSERVATION WELL.

GENERAL COMPLIANCE NOTES

- ARCHITECTURAL AND CIVIL DRAWINGS SHALL TAKE PRECEDENCE FOR REFERENCING ALL DIMENSIONS, PROPERTY LINES, ELEVATIONS AND EQUIPMENT LOCATION.
- ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BEFORE STARTING ANY WORK. ANY DISCREPANCY SHALL BE CALLED TO THE ATTENTION OF THE OWNERS ENGINEER FOR HIS DECISION BEFORE PROCEEDING WITH THE WORK.
- GENERAL CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM APPLICABLE AGENCIES FOR EXCAVATIONS OF TRENCHES 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND.
- AN UNAUTHORIZED RELEASE RESPONSE PLAN MUST BE SUBMITTED AND APPROVED BY GOVERNING AGENCY PRIOR TO TANK OPERATIONS.
- ALL MATERIALS SHALL BE COMPATIBLE WITH USE FOR THE INTENDED PURPOSE AS PER NATIONALLY RECOGNIZED CODES, LOCAL CODES AND GOVERNING AUTHORITIES.
- THE UNDERGROUND STORAGE TANK SYSTEM SHALL BE COMPATIBLE WITH THE PRODUCT STORED.
- ALL MONITORING DEVICES SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- GENERAL CONTRACTOR IS REQUIRED TO PROVIDE 72 HOUR (TYPICAL) NOTIFICATION TO GOVERNING AGENCY PRIOR TO TANK INSTALLATION.
- TANK AND PIPING SYSTEM TO BE INSPECTED BY OWNER'S THIRD PARTY INSPECTOR & GOVERNING AGENCY AT FOUR (4) SEPARATE CONSTRUCTION PHASES (SEE SPECIFICATIONS):
 - A. TANK AIR TEST BEFORE SETTING IN HOLE AND SOAP TEST.
 - B. TANKS AND PRIMARY PIPING HYDROSTATICALLY OR PNEUMATICALLY TESTED FOR 30 MINUTES.
 - C. INSPECTION OF ALL SECONDARY CONTAINMENT, INCLUDING TESTING, IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
 - D. FINAL INSPECTION INCLUDING ALL PORTIONS OF THE LEAK DETECTION SYSTEM.
- ALL TANK SUMPS AND UNDER DISPENSER CONTAINMENT SUMPS SHALL BE HYDROSTATICALLY TESTED (LAKE TEST) WITH STANDING WATER TO TOP OF REDUCING COLLAR FOR A PERIOD OF 24 HOURS TO INSURE THAT THE SUMPS ARE WATERTIGHT. RECORD THE TEST RESULTS AND SUBMIT TO OWNER.
- TANK SYSTEM, LEAK DETECTORS AND MONITORING SYSTEM INTEGRITY TESTS FORWARDED AND APPROVED BY GOVERNING AGENCY PRIOR TO TANK SYSTEM BEING PLACED IN OPERATION.
- PRIOR TO FUEL BEING PUMPED, STATION MUST HAVE VEEDER ROOT FUNCTIONAL AND MONITORING ANNULAR SPACES OF TANK AND DISPENSER SUMPS.
- PAYMENT OF ALL APPLICABLE USE OPERATING FEES SHALL BE SUBMITTED TO THE GOVERNING JURISDICTION WITHIN 30 DAYS OF THE FINAL INSPECTION.
- EVIDENCE OF FINANCIAL RESPONSIBILITY SHALL BE SUBMITTED TO GOVERNING AGENCY (BY BP).
- MEASUREMENTS OF BRINE LEVELS IN TANKS SHALL BE TAKEN BY BP REPRESENTATIVE DURING THREE SEPARATE VISITS TO SITE AND PRIOR TO FUELING OPERATIONS. REFER TO TANK MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR REQUIREMENTS.

UTILITY CONFLICT NOTE:

CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POT HOUNG THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1 (800) 227-2600 AND THEN POT HOUNG ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR THE CONTRACTOR SHALL CONSULT THE OWNERS CIVIL ENGINEER TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

CAUTION:
POTENTIAL UTILITY CONFLICT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONFLICT NOTE. THE EXISTING WATER, STORM, AND SANITARY SEWER SERVICE SHOWN IS APPROXIMATE, BASED ON FIELD SURVEYS AND "AS-BUILT" RECORDS. THE GENERAL CONTRACTOR SHALL "POT HOLE" THE EXISTING UTILITIES TO VERIFY THE DIAMETER AND LOCATION (INCL. ELEVATIONS) PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IN THE LOCATION OF THE EXISTING PIPE OR INCOMPATIBILITY OF THE DESIGN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNERS REPRESENTATIVE, AND OWNERS CIVIL ENGINEER.

TANK EXCAVATION NOTE:
TANK EXCAVATIONS SHALL BE PER OSHA REQUIREMENTS AND BE PERFORMED FOLLOWING THE RECOMMENDATIONS OF THE SOILS REPORT. TANKS EXCAVATIONS THAT REQUIRE SHORING SHALL BE ENGINEERED AND PERMITTED SEPARATELY AND SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. HIGH WATER TABLE IS ANTICIPATED. CONTRACTOR TO SHORE AND Dewater TANK HOLE EXCAVATION. FOLLOW TANK MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR WET HOLE TANK INSTALLATION.

DEWATERING NOTE
THE GENERAL CONTRACTOR SHALL REVIEW PLANS, NOTES, AND GEOTECHNICAL ENGINEER RECOMMENDATIONS FOR IF DEWATERING MEASURES REQUIRED FOR EXCAVATIONS. COSTS FOR PROVIDING AND IMPLEMENTING THESE MEASURES ON THIS PROJECT SHALL BE SPECIFICALLY INCLUDED IN THE CONTRACTOR'S BID PROPOSALS.

GEOTECHNICAL ENGINEER:
KRAZAN & ASSOCIATES, INC.
825 CENTER STREET, STE A
TACOMA, WASHINGTON 98409
PHONE: (253) 939-2500
CONTACT: THERESA R. NUNAN

GROUND WATER LEVEL NOTE:
A SOILS REPORT OF THIS SITE LOCATION HAS REVEALED THAT GROUNDWATER WAS ENCOUNTERED BETWEEN 1.2 AND 3.7 FEET BELOW THE GROUND SURFACE WITH A MAXIMUM EXPLORED DEPTH OF 7.1 FEET. TANKS SHALL BE INSTALLED WITH CONCRETE DEADMEN AND FILTER FABRIC PER MANUFACTURERS' GUIDELINES.

TANK AND PIPING INSTALLATION SCOPE OF WORK:

GENERAL:

SCOPE OF WORK: UNLESS SPECIFIED OTHERWISE ON THESE DRAWINGS, THE GENERAL CONTRACTOR SHALL FURNISH ALL WORK AND MATERIALS TO COMPLETE THE INSTALLATION OF THE SYSTEMS AND EQUIPMENT SHOWN IN THESE DRAWINGS AND AS REQUIRED BY PROJECT DOCUMENTS PROVIDED TO THE CONTRACTOR.

WHERE THESE DRAWINGS DIFFER FROM LOCAL REGULATIONS, LOCAL REGULATIONS WILL SUPERSEDE THESE DRAWINGS IF THEY ARE MORE STRINGENT.

NOTE:

THESE GUIDELINES APPLY ONLY TO UNDERGROUND STORAGE TANKS AND PRODUCT PIPING. REFER TO BALANCE OF SITE SPECIFIC DOCUMENTS/ DRAWINGS FOR SPECIFICATIONS REGARDING CONCRETE/ASPHALT INSTALLATION, ELECTRICAL REQUIREMENTS, AND SANITARY & STORM SEWERS INSTALLATION.

*** WHERE MULTIPLE VERSIONS OF THE SAME SHEET EXIST, INSERT ***
THE SHEET APPROPRIATE FOR THE SPECIFIC STATION LOCATION.

ARCHITECTURAL AND CIVIL DRAWINGS SHALL TAKE PRECEDENCE FOR REFERENCING ALL DIMENSIONS, PROPERTY LINES, ELEVATIONS AND EQUIPMENT LOCATIONS

ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BEFORE STARTING ANY WORK. ANY DISCREPANCY SHALL BE CALLED TO THE ATTENTION OF THE OWNERS ENGINEER FOR HIS DECISION BEFORE PROCEEDING WITH THE WORK.

ALL REQUESTS TO ADD, DELETE, OR SUBSTITUTE MATERIAL AND EQUIPMENT SHOWN ON THESE DRAWINGS MUST BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER, IN CHARGE OF THE PROJECT. ALL CHANGES MUST BE REVIEWED WITH THE MARKETING FUELS MANAGER.

THE CONTRACTOR IS REQUIRED TO FURNISH AS-BUILT DRAWINGS TO LOCATE TANKS AND PIPING AS INSTALLED AFTER THE COMPLETION OF THE PROJECT.

(1) TANK INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL DOUBLE WALL FIBERGLASS TANKS WITH COMPLETE "VEEDER ROOT PANEL" TANK AND PIPING MONITORING AND ALARM SYSTEM. TANKS TO BE SET MIN. 60" BELOW FINISH GRADE. SEE SITE SPECIFIC INSTALLATION DETAILS FOR TANK SIZES AND LOCATIONS.

NYC VARIANT: INSTALL TOP AND BOTTOM SLAB AND SLAB PIER SUPPORT SYSTEM PER NYC STANDARDS.

TANK SIZING GUIDELINES:

SPECIFIC BUSINESS UNIT TANK SIZE REQUIREMENTS ARE RECOMMENDED. TANK SIZING MODELS CAN BE RUN BY CONTACTING FUEL SYSTEM DESIGN MANAGER - AMERICAS.

LOCATION OF TANKS AND ASSOCIATED EQUIPMENT ON PROPERTY: FINAL FACILITY EQUIPMENT LOCATIONS INCLUDING PLACEMENT AND ORIENTATION OF TANKS, EMERGENCY SHUTOFF SWITCHES, OVERFILL ALARMS (IF PRESENT) TO BE APPROVED BY BP DISTRIBUTION PRIOR TO SUBMITTAL FOR PERMITS TO ENSURE CLEAR AND SAFE ACCESS TO THE UNDERGROUND TANKS FOR UNLOADING OPERATIONS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONFIRMING APPROVED TANK AND EQUIPMENT LOCATIONS HAS BEEN DOCUMENTED W/ BP DISTRIBUTION, THE SITE ENGINEER AND/OR OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER PRIOR TO THE COMMENCEMENT OF WORK.

"TANK EXCLUSION ZONE NOTE" THE UST STRUCTURAL EXCLUSION ZONE SHALL BE ESTABLISHED AS 16'-0" AS MEASURED FROM THE EXTERIOR FACE OF ANY UNDERGROUND STORAGE TANKS LOCATED WITHIN THE SITE PLAN. THE PURPOSE OF THIS ZONE IS TO ACT AS AN ENGINEERING BARRIER TO PREVENT THE RISK OF DAMAGE TO OUR UST'S FROM STRUCTURAL ELEMENTS THAT ARE TOO CLOSE TO THE EXCAVATION WALLS, RESULTING IN LATERAL INSTABILITY AND TRANSFER OF LOADS INTO THE TANK HOLE AND POTENTIALLY DAMAGING OUR TANKS

TANKS:

SHALL BE UNDERWRITERS LABORATORY APPROVED LISTED FOR THE UNDERGROUND STORAGE OF ALL FLAMMABLE AND COMBUSTIBLE MOTOR FUELS AS CALLED FOR ON THE SITE SPECIFIC DRAWING OR AS DESIGNATED ON THE SUPPLEMENTAL CONDITIONS AND SHALL BE DOUBLE WALL TANKS OF FIBERGLASS REINFORCED PLASTIC (FRP). INSTALLATION OF TANKS AND PIPING SHALL BE IN ACCORDANCE WITH U.L. LISTED MANUFACTURER'S INSTRUCTIONS. INSTALLATION SHALL CONFORM TO NFPA-30/30A AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. TANKS SHALL ONLY BE INSTALLED BY QUALIFIED INSTALLERS CERTIFIED BY THE STATE IN WHICH THE TANKS ARE TO BE INSTALLED AND BY THE TANK MANUFACTURER.

THE UNDERGROUND STORAGE TANK SYSTEM SHALL BE COMPATIBLE WITH THE PRODUCT STORED. ALL CONTINUOUS MONITORING DEVICES SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

ALL MATERIALS USED IN THE INSTALLATION SHALL BE COMPATIBLE WITH USE FOR THE INTENDED PURPOSE AS PER NATIONALLY RECOGNIZED CODES, LOCAL CODES AND GOVERNING AUTHORITIES.

METHANOL COMPATIBILITY: FOR ALL METHANOL COMPATIBLE STORAGE SYSTEMS, ALL READILY ACCESSIBLE COMPONENTS SHALL BE METHANOL COMPATIBLE FOR THE IMMEDIATE INTENDED SERVICE.

BIO-DIESEL COMPATIBILITY: CURRENTLY AT THIS TIME, NO TANKS ARE LISTED FOR BIO-DIESEL SERVICE APPLICATIONS.

INITIAL TANK TESTING:

NEW TANKS SHALL BE INSPECTED UPON ARRIVAL AT SITE, AFTER UNLOADING FROM THE TRUCK, FOR VISUAL DAMAGE PRIOR TO INSTALLATION.

- FOR DRY ANNULAR SPACE TANKS AIR/SOAP TESTS MUST BE PERFORMED AT THE JOB SITE PRIOR TO INSTALLATION TO VERIFY THE ABSENCE OF DAMAGE.
- FOR LIQUID FILLED ANNULAR SPACE TANKS - AIR/SOAP TESTS ON ACCESSORIES AND FITTINGS CAN BE PERFORMED AFTER THE TANK IS IN THE EXCAVATION BEFORE OR AFTER BACKFILLING.

CONTRACTOR SHALL COMPLETE ALL TESTING ACCORDING TO MANUFACTURER'S INSTRUCTIONS FOR THE TANKS. CONTRACTOR SHALL COMPLETE ALL WARRANTY VALIDATION TESTING AND PROVIDE DOCUMENTATION TO OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER.

HYDROSTATICALLY MONITORED DOUBLE WALL TANKS SHALL BE TESTED ACCORDING TO MANUFACTURER'S INSTRUCTIONS BY:

- INSPECT AND ADJUST RESERVOIR LEVEL OF THE MONITORING FLUID (TO COVER THE RISE INSIDE THE RESERVOIR).
- REMOVE ENOUGH TANK FITTING PLUGS TO SEE INSIDE THE PRIMARY TANK. VISUALLY INSPECT THE TANK INTERIOR FOR COLORED MONITORING FLUID TRACES.
- CONNECT TANK TEST MANIFOLD AND PRESSURIZE THE PRIMARY TANK TO 5 PSIG MAX. (3 PSIG MAX. FOR 12' TANKS). MONITOR THE PRESSURE FOR 30 MINUTES FOR ANY LOSS IN PRESSURE THAT MAY INDICATE A LEAK.
- DO NOT PRESSURIZE THE ANNULAR SPACE. DOING SO MAY DAMAGE THE PRIMARY TANK OR CAUSE TANK FAILURE.
- WHILE UNDER PRESSURE, COVER FITTINGS AND MANWAY(S) WITH SOAP SOLUTION AND INSPECT.
- AFTER COMPLETING AIR TEST, RELEASE PRESSURE; REMOVE ALL GAUGES, VALVES, AND HOSE ASSEMBLIES; REPLACE AND TIGHTEN FITTING PLUGS; AND REPLACE THE PLASTIC VENT PLUG IN THE OPEN FITTINGS.

NOTE HYDROSTATIC FLUID RESERVOIR LEVEL MUST BE RECHECKED TO VERIFY TANK INTEGRITY PRIOR TO INTRODUCING BALLAST INTO TANKS.

FIELD REPAIR OF TANKS: IT IS ALLOWABLE TO FIELD REPAIR DAMAGED TANKS AFTER APPROVAL BY BP FIELD ENGINEER. ALL TANKS DAMAGED IN TRANSPORT OR OFF LOADING OPERATIONS SHALL BE FIELD REPAIRED BY A TANK MANUFACTURER'S CERTIFIED FIELD SERVICE REPRESENTATIVE. TANK MANUFACTURER SHALL RE-CERTIFY REPAIRED TANKS FOR USE. ALL FIELD SERVICE WORK SHALL BE DOCUMENTED. COPIES OF ANY AND ALL FIELD SERVICE DOCUMENTATION SHALL BE PLACED IN THE PROJECT FILE AND INTO OWNERS OPERATING FILE.

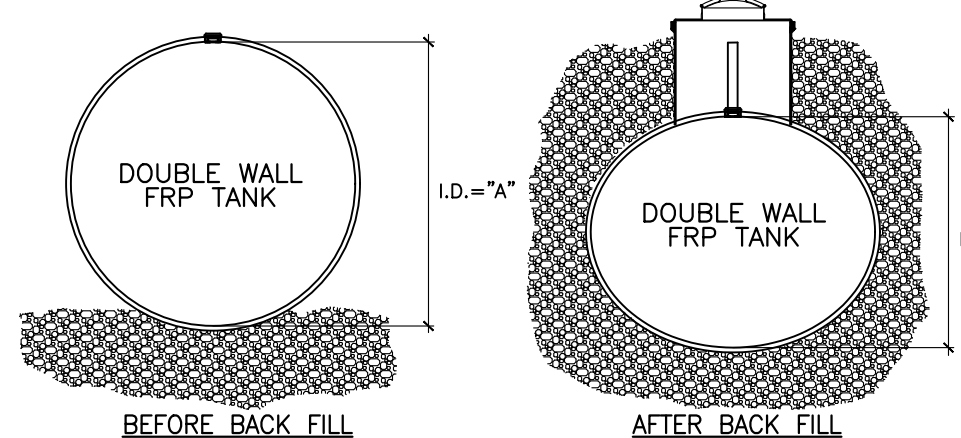
TANK MEASUREMENTS:

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COMPLETION OF THE FOLLOWING TANK MEASUREMENT ACTIVITIES:

1. VERIFY THE EXTERNAL SIZE OF THE TANK TO MATCH WITH MANUFACTURER SUPPLIED SHOP MEASUREMENTS.
2. TRANSFER THE SIZE, SERIAL NUMBER, AND PRODUCT INSTALLED, AND POSITION OF TANK TO THE AS-BUILT PLAN.
3. TRANSFER TANK DIMENSIONAL AND PRODUCT INFORMATION TO THE DATA SHEET IN THE TANK GAUGE CONSOLE.
2. PROVIDE THE TOP OF TANK ELEVATION READING AT BOTH ENDS OF EACH TANK.

TANK DEFLECTION MEASUREMENT PROCEDURE:

DEFLECTION MEASUREMENT BEFORE AND AFTER TANK INSTALLATION SHALL BE ACCORDING TO MANUFACTURER'S REQUIREMENTS AND SHALL BE WITHIN MANUFACTURER'S TOLERANCES. ALL INFORMATION SHALL BE COMPLETED AS PER THE MANUFACTURER'S WARRANTY DOCUMENTATION.



TANK INSPECTION AND INSTALLATION - DEFLECTION MEASUREMENT

DIPSTICK PREPARATION

DRIVE A SMALL HEADED, NON-SPARKING (E.G. BRASS) NAIL HALFWAY INTO A WOODEN DIPSTICK, 1 INCH ABOVE ITS BASE.

FIRST DIAMETER READING (PRIOR TO BACK FILL)

1. PLACE THE DIPSTICK INTO A SERVICE FITTING.
2. MEASURE AND RECORD THE DISTANCE FROM THE TANK BOTTOM TO THE TOP OF THE FITTING.
3. PULL THE DIPSTICK UP UNTIL THE EXPOSED NAIL CATCHES ON THE INSIDE TOP OF TANK.
4. MEASURE THE DISTANCE FROM THE TANK TOP (INSIDE) TO THE TOP OF THE FITTING. SUBTRACT 1 INCH FROM THIS MEASUREMENT AND RECORD THE DISTANCE.
5. SUBTRACT THE SECOND DISTANCE FROM THE FIRST AND RECORD THIS VALUE AS READING "A" ON THE INSTALLATION CHECKLIST.

SECOND DIAMETER READING (AFTER BACKFILL)

1. PLACE THE DIPSTICK INTO A SERVICE FITTING WITH A STANDPIPE INSTALLED TO SUBRADE.
2. MEASURE AND RECORD THE DISTANCE FROM THE TANK BOTTOM TO THE TOP OF THE STANDPIPE.
3. PULL THE DIPSTICK UP UNTIL THE EXPOSED NAIL CATCHES ON THE INSIDE TOP OF TANK.
4. MEASURE THE DISTANCE FROM THE TANK TOP (INSIDE) TO THE TOP OF THE STANDPIPE. SUBTRACT 1 INCH FROM THIS MEASUREMENT AND RECORD THE DISTANCE.
5. SUBTRACT THE SECOND DISTANCE FROM THE FIRST AND RECORD THIS VALUE AS READING "B" ON THE INSTALLATION CHECKLIST.

CALCULATION AND COMPARISON

1. SUBTRACT READING "B" FROM READING "A".
2. COMPARE THIS VALUE TO THE TABLE OF "MAXIMUM ALLOWABLE DEFLECTIONS" SHOWN ON THE "INSTALLATION CHECKLIST".
3. VERTICAL DEFLECTION IN EXCESS OF THESE VALUES INDICATES IMPROPER INSTALLATION AND VOIDS THE TANK WARRANTY.

MAXIMUM DEFLECTION FOR 8'-0" TANKS = 1-1/4"
MAXIMUM DEFLECTION FOR 10'-0" TANKS = 1-1/2"

TOP OF TANK ELEVATION:

CONTRACTOR TO CALCULATE TOP OF TANK ELEVATION. START WITH 18" MINIMUM DEPTH OF VAPOR RECOVERY LINE AT THE FARTHEST DISPENSER AND SLOPE 1/4" PER FOOT MAXIMUM TO 1/8" PER FOOT MINIMUM. ADD 12" AT THE TANK. ADD 13" (FOR 3" PIPE) OR 8" (FOR 2") FOR A CHANGE IN PIPING DIRECTION OTHER THAN 90 OR 45 DEGREES. SET TANKS 6" DEEPER THAN CALCULATED AS PRECAUTION. IN NO EVENT SHALL THE TANK BE BURIED LESS THAN 4'-0" BELOW FINISHED GRADE OR DEEPER THAN 7'-0" BELOW FINISHED GRADE. SEE MANUFACTURERS INSTALLATION INSTRUCTIONS FOR MINIMAL TANK BURY WHEN DEADMAN ANCHORING IS NOT PROVIDED. ANY VARIATIONS IN SLOPE FROM 1/4" PER FOOT SHALL BE REPORTED TO OWNER'S ENGINEER.

TANK EXCAVATION:

CONTRACTOR TO EXCAVATE TANK HOLE. CONTRACTOR SHALL ADHERE TO O.S.H.A. STANDARDS ON EXCAVATIONS. CONTRACTOR MAY SELECT ANY OF THE RECOMMENDED PRACTICES FOR TANK EXCAVATION AND MUST PROVIDE ALL NECESSARY PROTECTIVE BARRICADES.

SLOPE SIDES OF TANK HOLE (USE OF SLOPING MUST BE RECEIVE PRIOR APPROVAL ON INDIVIDUAL SITE BASIC FROM "BP") OR USE SHORING FOR ALL TANK EXCAVATIONS IN ACCORDANCE WITH OSHA 1926 SUBPART P, OSHA STANDARDS - EXCAVATIONS; FINAL RULE OCTOBER 1, 1989. WHEN ENGINEERING IS REQUIRED DUE TO SITE CONDITIONS AN ENGINEERED SHORING PLAN UTILIZING INTERLOCKING STEEL SHEET PILING SHALL BE PROVIDED AND SHALL INCLUDE SUPPORTING ENGINEERING CALCULATIONS BY A STATE CERTIFIED ENGINEER AND SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.

GENERAL CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM APPLICABLE AGENCIES FOR EXCAVATIONS OF TRENCHES 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND.

TANK EXCAVATIONS SHALL BE THE MINIMUM SIZE REQUIRED TO PROVIDE FOR BEDDING AND CLEARANCES INDICATED IN THESE DRAWINGS. TANK BURIAL DEPTH FIELD DETERMINED TO PROVIDE FOR 1/4" (1/8" PER FOOT MIN.) PER FOOT FOR STAGE II VAPOR RECOVERY PIPING & 1/8" MINIMUM PER FOOT FOR PRODUCT PIPING SLOPE BACK FROM DISPENSERS TO TANK.

TANK STABILITY BUOYANCY CALCULATIONS:

TANK STABILITY SHALL BE RE-CHECKED AGAINST FLOATION BY INSTALLING CONTRACTOR. SEE BUOYANCY CALCULATIONS ON TANK DETAILING SHEETS.

TANK ANCHORING:

CONTRACTOR TO INSTALL MANUFACTURER SUPPLIED TANK HOLD DOWN STRAPS & ANCHORS WHEN REQUIRED DUE TO HIGH WATER TABLE, LOCAL REGULATIONS, OR SPECIFIED BY SITE ENGINEER/DESIGNER AND/OR OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER. WHEN REQUIRED, THE ANCHORING SYSTEM SHALL BE IN COMPLIANCE WITH AUTHORITY HAVING JURISDICTION. ANCHOR & STRAPS TO BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

** ALTERNATE ANCHORING BY USE OF A CONCRETE ANCHORING SLAB IS PERMITTED. WHEN GROUNDWATER LEVEL IS ANTICIPATED TO BE WITHIN 5 FT. OF GRADE CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE FOR DIRECTION ON ANCHORING METHOD TO BE USED (DEADMAN OR ANCHORING SLAB) AND SUCH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATION.

** THIS PROCEDURE IS REQUIRED IN NYC AND CONSIDERED PART OF SCOPE OF WORK WHEN INSTALLING TANKS IN NYC.

NYC VARIANT: IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE FOR THE INSTALLATION OF A 12" CONCRETE ANCHORING SLAB. 4,000 PSI AT 28 DAYS WITH (2) LAYERS OF 6x6-w5.5xw5.5 ON 2" STEEL CHAIRS TOP & BOTTOM

FILTER FABRIC: IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE FOR THE INSTALLATION OF FILTER FABRIC (DUPONT TYPAR OR MIRAFI 500X) WHICH IS REQUIRED FOR WET HOLE INSTALLATIONS OR UNSUITABLE SOILS. (NOTE: A WET HOLE/ UNSUITABLE AREA REQUIRING FILTER FABRIC IS ANY TANK EXCAVATION IN WHICH THE AREA IS SUBJECT TO: TIDAL INFLUENCES, OR AREAS SUBJECT TO FREQUENTLY CHANGING GROUND WATER LEVELS, OR WATER CONDITIONS WITH SILTY SOIL, OR MUCK, BOG, PEAT, SWAMP, LANDFILL TYPE AREAS OR ANY OTHER SITUATION WHERE THE SOIL IS INHERENTLY UNSTABLE, OR SOILS WITH LESS THAN 250 LBS./SQ. FT. COHESION, OR WITH ULTIMATE BEARING CAPACITY OF LESS THAN 500 LBS./SQ. FT., OR AT THE REQUEST OF THE TANK OWNER. ALL WET HOLE BALLAST INSTALLS (AS DESCRIBED IN SECTION BELOW) SHALL USE FILTER FABRIC.

FILTER FABRIC SHALL EXTEND 1 FOOT ABOVE MAX HIGH WATER TABLE AND SEAMS SHALL BE OVERLAPPED BY 1 FOOT. MATERIAL SHALL BE PINNED OR OTHERWISE SECURED ALLOW BACKFILL WITHOUT DISTURBANCE. USE OF PLASTIC, OR ANY OTHER MATERIAL THAT MAY TEAR, OR DEGRADE OVERTIME IS PROHIBITED.

WET HOLE BALLAST METHOD:

WATER IS THE SUITABLE MEDIUM FOR BALLAST DURING WET HOLE TANK INSTALLATIONS. A PROPERLY INSTALLED 12 FOOT HIGH TEMPORARY VENT PIPE MUST BE INSTALLED BY THE CONTRACTOR. IF WATER IS USED TO BALLAST TANKS, THE WATER IS TO BE COMPLETELY PUMPED OUT & MOPPED DRY IN ORDER TO PROTECT FUEL INTEGRITY. CONTRACTOR IS REQUIRED TO COORDINATE BALLASTING OPERATIONS WITH OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER. IT IS THE INSTALLING CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE JURISDICTIONAL REQUIREMENTS AND ACCEPTANCE FOR BALLASTING THE TANKS AND TO PROVIDE FOR PROPER DISPOSAL OF THE BALLASTING MEDIUM UNDER THE REGULATIONS OF THE GOVERNING AUTHORITY.

BACK FILL:

CONTRACTOR TO PROVIDE ALL BACK FILL REQUIRED FOR THE PROJECT SCOPE. PEA GRAVEL SHALL CONSIST OF NATURALLY ROUNDED AGGREGATE. MINIMUM 1/8" AND MAXIMUM 3/4" SIZE. FREE OF CLAY, SLAG, CINDERS, OR DEBRIS. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER AND OWNERS FIELD REPRESENTATIVE.

NO MORE THAN 5% (BY WEIGHT) MAY PASS THE #8 SIEVE FOR BACK FILLING NONMETALLIC TANKS WITH A 96% TO 98% FREE FILL COMPACTION. DRY PEA GRAVEL DENSITY MINIMUM OF 95 POUNDS PER CUBIC FOOT IS REQUIRED. SUPPLY QUARRY CERTIFICATION MEETING ASTM C-33, PARAGRAPH 9.1 REQUIREMENTS.

BACK FILLING OF TANK EXCAVATIONS SHALL BE PROVIDED IN LIFTS AS PER TANK MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PRODUCT, VENT, AND VAPOR PIPING SHALL BE LAID AND CONTINUOUSLY SUPPORTED ON A 6" BED OF COMPACTED PEA GRAVEL. BLOCKS, PLANKS, OR OTHER DEBRIS SHALL NOT BE USED TO SUPPORT PIPING IN FINAL INSTALLATION.

NOTE: UNDER NO CIRCUMSTANCES SHALL DIRT, PAVING MATERIALS, WOOD, OR OTHER CONSTRUCTION DEBRIS BE ALLOWED TO REMAIN IN TANK AND PIPE EXCAVATIONS.

(2) ANNULAR SPACE HYDROSTATIC MONITOR AND RISER INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL 4" FIBERGLASS RISER AND VEEDER ROOT HYDROSTATIC SENSOR AT TANK ANNULAR SPACE LOCATION NOTED ON THE PLANS PER MANUFACTURERS INSTRUCTIONS.

(3) TANK SUMP INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL 42" OR 48" DIAMETER TURBINE SIDE FIBERGLASS POLYSIDED SUMPS ON TANKS PER MANUFACTURER'S INSTRUCTIONS. NOTE THAT THE ORIENTATION OF THE TANK SUMPS MUST BE CORRECT IN ORDER TO FACILITATE CORRECT PIPING INSTALLATION INTO THE SUMPS. SEE ACCOMPANYING DETAILS IN PLAN SET AND NOTE SIZES OF SUMPS PER PROJECT DEMOGRAPHICS.

NYC VARIANT: 42" DIAMETER TURBINE SUMPS ARE INSTALLED.

LONG ISLAND/NY VARIANT: ON TANKS INSTALLED IN LONG ISLAND, FILL SUMPS ARE REQUIRED. SEE ENCLOSED DRAWINGS FOR DETAILS

ARCO BRANDED VARIANT: 48" DIAMETER TURBINE SUMPS ARE INSTALLED.

CALIFORNIA VARIANT: 42" DIAMETER FILL SUMPS TO BE DOUBLE WALLED AND INSTALLED WITH CONTINUOUS HYDROSTATIC MONITORING DEVICE PER AB-2481 REQUIREMENTS.

(4) TANK LEVEL GAUGE / OVERFLOW PROTECTION:

STANDARD: CONTRACTOR TO INSTALL VEEDER ROOT MAGNOSTRICTIVE PROBE LEVEL GAUGE AT LOCATION NOTED ON PLANS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

OVERFLOW PROTECTION: USE OVERFLOW COMPLIANCE IS ACHIEVED BY USE OF OVERFLOW PREVENTION DROP TUBE FLAPPER VALVE SET AT 95% AND IS IN ACCORDANCE WITH FEDERAL AND STATE GUIDELINES FOR UST OVERFILL REQUIREMENTS.

AN OVERFILL ALARM AND ACKNOWLEDGE SWITCH TIED INTO THE VEEDER ROOT AUTOMATIC TANK GAUGE SYSTEM. THE MONITORING SYSTEM PROVIDES AN AUDIBLE AND VISUAL ALARM WHEN THE TANK(S) ARE FILLED TO THE 90% LEVEL.

(5) FILL AND STAGE I VAPOR RECOVERY INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL 4" GALVANIZED FILL AND STAGE I VAPOR RECOVERY RISERS. CONTRACTOR TO INSTALL DROP TUBE ASSEMBLY. WITH OVERFILL PREVENTION DROP TUBE. CONTRACTOR TO INSTALL VENT AND STAGE II FLEX CONNECTORS AND FRP ADAPTERS. LOCATE AND CUT PENETRATIONS INTO SUMPS FOR THE ROUTING OF VENT AND STAGE II VAPOR PIPING INTO TURBINE SUMPS AND MAKE CONNECTIONS TO VENT AND VAPOR PIPING FIBERGLASS PIPING. CONTRACTOR TO INSTALL DOUBLE SIDED PENETRATION ENTRY BOOTS FOR ALL ENTRIES INTO SUMPS. CONTRACTOR TO INSTALL STATIC GROUNDING SYSTEM AT ALL FILL AND VAPOR RISERS PER INSTALLATION DETAILS SHOWN ON SHEET G.0.7.

CONTRACTOR TO INSTALL CARB APPROVED STAGE I MANHOLES WITH 5 GALLON SPILL COLLECTION BUCKETS. INSTALL PRODUCT AND FILL ADAPTERS AND CAPS. SEE ACCOMPANYING DETAILS IN SITE SPECIFIC PLAN SET FOR MANUFACTURER AND INSTALLATION REQUIREMENTS.

NYC VARIANT: CONTRACTOR TO PROVIDE THE INSTALLATIONS OF A SEPARATE UNOBSERVED VENT CONNECTION AT EACH TANK AT THE TURBINE SIDE OF THE TANK AS PER PLANS AND PER NYC CODE REQUIREMENTS. A 15 GALLON PRODUCT SPILL COLLECTION BUCKET IS REQUIRED BY NYC FIRE CODE. FILL SPILL BUCKETS MUST HAVE A NYC CERTIFICATE OF APPROVAL FROM FIRE DEPARTMENT.

(6) TURBINE INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL FE PETRO IST 2 HP VARIABLE SPEED TURBINES AND PIPING CONNECTION VALVES AND FITTINGS IN TANK SUMPS AS SHOWN ON SITE SPECIFIC DETAIL DRAWINGS. ALL PRODUCT LINES TO TURBINES TO BE EQUIPPED WITH 3 GPH ELECTRONIC LINE LEAK DETECTION. LEAK DETECTORS ARE TO BE TESTED FOR THE 3 GPH LEAK DETECTION PRIOR TO START UP. CONTRACTOR TO PROVIDE TEST DATA AT THE TIME OF PUNCH LIST AS WELL AS INCLUDE IN CLOSE OUT BINDER. ALL TURBINES ARE EQUIPPED WITH STANDARD "R" CHECK VALVE AS A STANDARD FROM FACTORY. SET TURBINE INTAKES AT 5" FROM BOTTOM OF TANKS. TURBINES TO BE EQUIPPED WITH INTAKE FILTER SCREENS. CONTRACTOR TO INSTALL 1" RIGID STEEL CONDUITS FOR SUBMERSIBLE PUMP POWER. (ONE FOR EACH TURBINE). CONTRACTOR IS TO LABEL TURBINES AND CONTROLLERS AS TO WHICH PRODUCT THEY SERVE. GREEN CONTROLLER LIGHTS ARE TO GO OUT WHEN TURBINES ARE OFF OR LOSE POWER. IST PUMP CONTROLS ARE TIED TO VEEDER ROOT CONTROL PANEL. SEE APPROPRIATE TURBINE CONFIGURATION AND PROGRAMMING SHEETS.

SINGLE MASTER TURBINE CONFIGURATIONS - EQUIPPED AS NOTED ABOVE. SEE APPROPRIATE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

MASTER-SATELLITE TURBINE CONFIGURATIONS - EQUIPPED AS NOTED ABOVE EXCEPT: ONLY THE MASTER TURBINE SHALL HAVE THE PLLD LEAK DETECTOR INSTALLED. CONTRACTOR TO REMOVE THE STANDARD "R" CHECK VALVE OUT OF THE SATELLITE TURBINE. THE BALL VALVE ON MANIFOLD LINE BETWEEN TURBINES SHALL BE SET IN THE "OPEN" POSITION AND A SINGLE PLD PART #848-480-001 (TLS350) OR DPLD PART #859080-001 (TSL450) IS TO BE INSTALLED ON THE MASTER IST WITH AN FE. PETRO NON-VENTED PRECISION CHECK VALVE (PART #65 PSI) INSTALLED ON THE SATELLITE IST PREVENTING BACKFLOW OF USTs. SEE APPROPRIATE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

MASTER-MASTER TURBINE CONFIGURATIONS - EQUIPPED AS NOTED ABOVE EXCEPT: THE BALL VALVE ON MANIFOLD LINE BETWEEN TURBINES SHALL BE SET IN THE "CLOSED" POSITION DURING NORMAL OPERATION. SEPARATE LINES & (2) PLD PART #848-480-001 (TSL350) OR (2) DPLD PART #859080-001 (TSL450) SHALL BE INSTALLED. IN CASE OF FAILURE OF AN INDIVIDUAL IST, THE PRODUCT CROSS-OVER LINE CAN BE PLACED INTO OPERATION BY OPENING THE CROSS CONNECTING VALVE. THE FAILED IST MUST HAVE ITS PLD DISABLED & DISPENSER SIGNAL WIRES NEED TO BE MODIFIED FOR THIS TEMPORARY SET-UP. SEE APPROPRIATE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

ARCO LARGE SITE VARIANT - IF SITE HAS 9 OR MORE MPD'S, TWO (2) 2 HP VARIABLE SPEED TURBINES ARE TO BE INSTALLED IN THE PRIMARY REGULAR UNLOADED TANK. THE REGULAR UNLOADED TURBINES SHALL BE SET UP AS "MASTER/SATELLITE/SATELLITE" AND THE CROSS CONNECTION MANIFOLD BETWEEN TANKS SHALL BE OPENED ALLOWING ALL THREE TURBINES TO SERVE THE ENTIRE SITE.

NYC VARIANT: MASTER-MASTER TURBINE CONFIGURATION W/ ROTATING STARTS - EQUIPPED AS NOTED ABOVE FOR MASTER-SATELLITE CONFIGURATION EXCEPT WITHOUT SIPHON LINE BETWEEN TANKS: THE UST PRODUCT LEVEL BALANCING IS ACHIEVED BY ROTATING THE STARTING OF INDIVIDUAL IST'S WITH CONTROL LOGIC LINKED TO THE VEEDER ROOT ATG. THE PRODUCT LINES ARE CONNECTED BY A CROSS OVER MANIFOLD BETWEEN TURBINES. ONE IST, THE MASTER, SHALL HAVE A PLD LEAK DETECTION DEVICE INSTALLED PLD's PART #848-480-001 (TSL350)

(OR) 2) DPLD's PART #859080-001 (TSL450) AND THE SATELLITE SHALL HAVE AN FE PETRO NON-VENTED PRECISION CHECK VALVE (PART #65 PSI) INSTALLED. THE BALL VALVE ON MANIFOLD LINE BETWEEN TURBINES SHALL BE SET IN THE "OPEN" POSITION DURING NORMAL OPERATION. IN CASE OF FAILURE OF AN INDIVIDUAL IST, NO ADJUSTMENT TO THE DISPENSER SIGNAL WIRES WILL BE REQUIRED AS THE IST CONTROLLERS WILL ACCOMMODATE THE IST STARTING VIA THE VEEDER ROOT ATG LINK. THE PRODUCT IN THE UST WITH THE FAILED IST WILL HAVE THE PRODUCT LEFT IN A STATIC STATE AND NOT AVAILABLE FOR DISPENSING UNTIL A REPAIR IS MADE. SEE APPROPRIATE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

(7) SIPHON LINE INSTALLATION:

STANDARD: WHEN SITE SPECIFIC TANK CONFIGURATION SHOWS MULTIPLE TANKS FOR IDENTICAL PRODUCTS, CONTRACTOR TO INSTALL 4" OVER 3" DOUBLE WALL FIBERGLASS SIPHON LINES AND PIPING CONNECTION VALVES AND FITTINGS BETWEEN TANKS. INSTALL SIPHON PIPING AS LOW AS POSSIBLE IN SUMP. NOTE LIMITATION ON MAXIMUM PIPING PIPING SYSTEM HEIGHT ON DETAILS. ADJUST HEIGHT DOWN FOR SMALLER DIAMETER TANKS. CONTRACTOR TO INSTALL VEEDER ROOT SIPHON BREAK, IF APPROPRIATE FOR MARKET CONDITIONS. SEE APPROPRIATE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

NYC VARIANT: SIPHON PIPING IS NOT INSTALLED. SEE TURBINE INSTALLATION NOTE ABOVE. SEE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

ARCO BRANDED VARIANT: CONTRACTOR TO INSTALL 4" OVER 3" DOUBLE WALL FIBERGLASS SIPHON PIPING. SIPHON BREAK IS NOT INSTALLED.

INSTALL SIPHON PIPING AS LOW AS POSSIBLE IN SUMP. NOTE LIMITATION ON MAXIMUM SIPHON PIPING SYSTEM HEIGHT ON DETAILS. ADJUST HEIGHT DOWN FOR SMALLER DIAMETER TANKS. SEE APPROPRIATE SITE SPECIFIC DRAWINGS FOR INSTALLATION DETAILS.

CALIFORNIA VARIANT: SIPHON PIPING TO BE INSTALLED WITH CONTINUOUS VACUUM MONITORING DEVICE PER AB-2481 REQUIREMENTS

(8) PRODUCT PIPING INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL DOUBLE WALL FIBERGLASS PRODUCT PIPING, CONNECTORS, VALVES AND FITTINGS IN TANK AND DISPENSER SUMPS AS SHOWN ON SITE SPECIFIC DETAIL DRAWINGS TO SUPPLY DISPENSERS. PRODUCT PIPING TO BE N.O.V. RED THREAD IA, 2" INSIDE 3" DIAMETER AS INDICATED ON SITE SPECIFIC FUELING PLAN. ALL PIPING AND FITTINGS SHALL BE UL-971 LISTED IN COMPLIANCE WITH THE JULY 2005 PERFORMANCE STANDARDS, AND SHALL BE COMPATIBLE WITH ETHANOL, INCLUDING BUT NOT LIMITED TO "E25/B20" (25% ETHANOL 75% GASOLINE). PRODUCTS LINES TO BE EQUIPPED 3 GPH PRESSURE LINE LEAK DETECTORS (PLD) ON TURBINES AND WITH LIQUID LEAK MONITORING SENSORS LOCATED IN TURBINE PIPING SUMPS ATTACHED TO TANKS WIRED FOR TURBINE SHUT DOWN. PRODUCT PIPING IN TURBINE SUMPS, PRODUCT PIPING CROSS CONNECTION MANIFOLDS BETWEEN SUMPS AND SIPHON PIPING PENETRATIONS ARE TO ENTER THE SAME SIDE OF THE SUMP IF POSSIBLE. IF PRODUCT PENETRATION ENTERS ON BOTH SIDES OF SUMP DUE TO FIELD CONDITIONS, THEN DUAL SENSORS AT TURBINE SUMP MAY BE REQUIRED TO BE INSTALLED BY LOCAL REGULATIONS. IF THE BP PROJECT MANAGER DETERMINES THAT THE ALL THE PIPING ENTRIES NOTED ABOVE COULD HAVE BEEN MADE TO THE SAME SIDE OF THE SUMP, THEN ANY COSTS ASSOCIATED WITH EXTRA SENSORS SHALL BE BORNE BY THE INSTALLING CONTRACTOR. PIPING TO BE INSTALLED WITH A SLOPE OF 1/8" PER FOOT MINIMUM TO TANKS UNLESS APPROVED BY OWNER. CONTRACTOR TO INSTALL TRACER TAPE WITH PRODUCT PIPING PER TRENCHING DETAILS. PENETRATIONS INTO ALL SUMPS SHALL BE MADE WITH DOUBLE WALL FRP ENTRY FITTINGS. TESTING OF PRODUCT LINES SHALL BE PERFORMED PRIOR TO BACK FILL, PRIOR TO PAVING AND BEFORE STATION OPERATION. SEE SITE SPECIFIC DETAIL SHEETS FOR INSTALLATION DETAILS.

NOTE "FIBERCAST SYSTEMS" PIPING TO BE INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL AND SHALL ONLY BE INSTALLED BY QUALIFIED INSTALLERS CERTIFIED BY THE MANUFACTURER.

CALIFORNIA VARIANT: IN ADDITION TO THE ABOVE, PIPING TO BE INSTALLED WITH CONTINUOUS VACUUM MONITORING DEVICE PER AB-2481 REQUIREMENTS

(9) VENT PIPING INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL 2" INDIVIDUAL SINGLE WALL FIBERGLASS VENT PIPING, CONNECTORS, VALVES AND FITTINGS ON TANKS AS INDICATED ON SITE SPECIFIC FUELING PLAN AND ACCOMPANYING DETAILS. CONTRACTOR TO PROVIDE AT LEAST 4 FEET OF PIPING RUN BEFORE A CHANGE OF DIRECTION OF 30 DEGREES OR MORE IN ORDER TO PROVIDE MECHANICAL FLEXIBILITY PER CODE REQUIREMENTS. CONTRACTOR TO INSTALL TRACER TAPE WITH VENT PIPING PER TRENCHING DETAILS. PENETRATIONS INTO ALL SUMPS SHALL BE MADE WITH SINGLE WALL ENTRY FITTINGS. VENT PIPING SHALL BE DESIGNED AND INSTALLED FOR SLOPE 1/4" PER FOOT MINIMUM BACK TO TANKS. FOR LONG PIPING RUNS 1/8" PER FOOT IS ACCEPTABLE.

CONTRACTOR TO INSTALL ABOVE GROUND RISERS AND MOUNTING RACK AS DETAILED ON THESE PLANS. TERMINATION POINT OF TANK VENTS TO BE A MINIMUM OF 12" ABOVE GRADE AND NOT WITHIN 5' FROM ANY BUILDING OPENING OR PROPERTY LINE THAT CAN BE BUILT UPON. VENT RISERS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA-30, INTERNATIONAL AND UNIFORM FIRE CODE REQUIREMENTS AND CARB EVR REQUIREMENTS.

CONTRACTOR TESTING OF VENT LINES SHALL BE PERFORMED PRIOR TO BACK FILL, PRIOR TO PAVING AND BEFORE STATION OPERATION. SEE SITE SPECIFIC DETAIL SHEETS FOR INSTALLATION DETAILS. SEE FIBERGLASS PIPING MANUFACTURER SPECIFICATION BELOW.

VENT PIPING SPECIFICATION:

FIBERCAST SYSTEMS: RED THREAD II PIPE AND FITTINGS (USED FOR SINGLE WALL). WHERE DOUBLE WALL SYSTEMS ARE REQUIRED FOR ALL VENT AND VAPOR PIPING, USE SIZE OVER SIZE RED THREAD II PIPING AND FITTINGS. USE ONLY FIBERCAST SYSTEMS ALCOHOL COMPATIBLE ADHESIVES. ALL PIPING AND FITTINGS SHALL BE UL-971 LISTED IN COMPLIANCE WITH THE JULY 2005 PERFORMANCE STANDARDS.

PIPING TO BE INSTALLED PER MANUFACTURER'S LISTED INSTRUCTIONS AND SHALL ONLY BE INSTALLED BY QUALIFIED INSTALLERS CERTIFIED BY THE MANUFACTURER. PROVIDE AT LEAST 4' OF STRAIGHT PIPING RUN BEFORE A CHANGE OF DIRECTION OF MORE THAN 30 DEGREES AND INSTALL FLEXIBLE CONNECTORS AT THE VENT AND VAPOR CONNECTION AT THE TANK SUMPS, AND DISPENSER SUMPS.

NYC VARIANT: SAME AS ABOVE EXCEPT: VENT CONNECTIONS ARE ROUTED TO A SEPARATE UNOBSERVED EXTRACTOR FITTING LOCATED IN THE TURBINE SIDE. VENT TERMINATION TO BE A MINIMUM OF 15' ABOVE GRADE.

JURISDICTIONAL VARIANT: INSTALL DOUBLE WALL SIZE OVER SIZE FIBERGLASS PIPING WHEN REQUIRED BY AUTHORITY HAVING JURISDICTION.

CALIFORNIA VARIANT: VENT PIPING TO BE DOUBLE WALLED AND INSTALLED WITH CONTINUOUS VACUUM MONITORING DEVICE PER AB-2481 REQUIREMENTS

(10) STAGE II VAPOR RECOVERY PIPING INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL 3" SINGLE WALL FIBERGLASS STAGE II VAPOR RECOVERY HEADER, CONNECTORS, VALVES AND FITTINGS TO THE LOWEST OCTANE GRADE AS INDICATED ON SITE SPECIFIC FUELING PLAN AND ACCOMPANYING DETAILS. NOTE THAT THE 1ST CONNECTION FROM STAGE II VAPOR RECOVERY HEADER TO LOWEST OCTANE TANK SHALL BE 3". ALL OTHER CONNECTIONS TO ADDITIONAL TANKS SHALL BE MADE WITH 2".

CONTRACTOR TO INSTALL 3" TO 2" REDUCING TEES WHERE HEADERS BRANCH TO DISPENSERS. MAXIMUM (2) DISPENSERS PER 2" BRANCH. CONTRACTOR TO PROVIDE AT LEAST 4 FEET OF STRAIGHT PIPING RUN BEFORE A CHANGE OF DIRECTION OF 30 DEGREES OR MORE IN ORDER TO PROVIDE MECHANICAL FLEXIBILITY PER CODE REQUIREMENTS. CONTRACTOR TO INSTALL TRACER TAPE WITH VAPOR PIPING PER TRENCHING DETAILS. PENETRATIONS INTO ALL SUMPS SHALL BE MADE WITH DOUBLE WALL ENTRY FITTINGS. STAGE II VAPOR RECOVERY PIPING SHALL BE DESIGNED AND INSTALLED FOR 1/4" PER FOOT MINIMUM SLOPE BACK TO TANKS. AT LARGE SITE LAYOUTS, 1/8" PER FOOT MINIMUM IS ACCEPTABLE IF IT AVOIDS USING A KNOCK OUT SUMP (VAPOR POT) OR HAVING EXCESSIVE TANK DEPTH. CONSULT OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER, WHERE DISCREPANCIES OCCUR.

TANK AND PIPING INSTALLATION SCOPE OF WORK:

(11) METAL PIPE AND FITTINGS:

STANDARD: STEEL PIPE SHOWN ON THESE DRAWINGS TO BE MINIMUM SCHEDULE 40. METAL PRODUCT LINE FITTINGS TO BE MALLEABLE IRON CLASS 150, GALVANIZED. ALL MALLEABLE IRON FITTINGS SHALL BE SUPPLIED BY "ANVIL" (FORMERLY "GRINNELL") OR EQUAL SPECIFICATIONS AS FOLLOWS:

	DIMENSIONS	MATERIAL	GALVANIZING	THREAD	PRESSURE RATING
M.I. FITTINGS (TEES, ELBOWS) CLASS 150/PN 20	ASME B16.3	ASTM A-197	ASTM A-153	ASME B.1 20.1	ASME B16.3
M.I. UNIONS CLASS 150/PN 20	ASME B16.39	ASTM A-197	ASTM A-153	ASME B.1 20.1	ASME B16.3
STEEL PIPE NIPPLES CLASS 150/PN 20	ASTM A733	ASTM A-53 (F OR E)	ASTM A-153	ASME B.1 20.1	ASME B16.3
STEEL PIPE CLASS 150/PN 20 SCHEDULE 40	N/A	ASTM A-53 (F OR E)	ASTM A-153	ASME B.1 20.1	ASME B16.3

GASOLINE/ALCOHOL COMPATIBLE THREAD SEALANT LIKE LOTCITE 567 SHALL BE USED ON ALL THREADED PIPE CONNECTIONS. ANY METAL PIPE OR FITTING USED FOR PRODUCT, VENT, OR VAPOR RECOVERY WHICH CONTACTS SOIL OR BACK FILL MUST BE 100% COVERED WITH A 3M SCOTCHRAP PRIMER AND 3M TEMFLEX 10 MIL OR 10 MIL SELF-PRIME PROSELECT PIPE TAPE.

(12) PIPING SUMP PENETRATION INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL SUMP PENETRATION FITTINGS. ALL PENETRATIONS OF THE SUMPS TO BE ON A LINE TOWARD THE CENTER OF THE SUMP, NOT TO EXCEED THE RECOMMENDED ANGLE IN ANY DIRECTION, TO ENSURE THE PROPER INSTALLATION OF ALL BULKHEAD AND COMPRESSION FITTINGS AND RESULTANT WATER TIGHTNESS. ALL PIPING, CONDUIT AND GROUNDS THAT PENETRATE THE SUMP SIDE WALLS MUST BE SEALED WITH DOUBLE SIDED BULKHEAD FITTINGS IN SUMPS. SUMPS SHALL BE HYDROSTATICALLY TESTED WITH STANDING WATER FOR A PERIOD OF 24 HOURS OR CERTIFIED USING SUMP MANUFACTURERS APPROVED TESTING PROCEDURE TO INSURE THAT SUMPS ARE WATERTIGHT. THE OWNER'S ENGINEER, THE BP PROJECT MANAGER MUST SIGN OFF ON THIS TESTING ON THE TANK INSTALLATION CHECK LIST.

MANUFACTURER ENTRY BOOT TYPE VARIANT: THE MAKE AND MODEL NUMBERS OF THE PIPING PENETRATION FITTINGS SHOWN IN THE DETAILS ARE NOT SUBJECT TO CHANGE. N.O.V. FRP BONDED ENTRY FITTINGS ARE REQUIRED FOR ALL PIPING PENETRATIONS. CONDUIT PENETRATIONS INTO SUMPS SHALL BE AS SPECIFIED ON THE PLANS.

CALIFORNIA VARIANT: CONTRACTOR TO INSTALL SUMP PENETRATION FITTINGS THAT MEET THE ADDITIONAL CRITERIA REQUIREMENT FOR CONTINUOUS HYDROSTATIC AND VACUUM MONITORING.

(13) DISPENSER INSTALLATION:

STANDARD: CONTRACTOR TO INSTALL "WAYNE OVATION" STYLE DISPENSERS WITH INTEGRATED CARD READERS AND INTERCOM SYSTEM AS SHOWN ON SITE SPECIFIC DESIGN DETAIL SHEETS. DISPENSERS TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALLATION TO INCLUDE DISPENSER ISLANDS, SINGLE WALL DISPENSER CONTAINMENT SUMPS, AND THE INSTALLATION OF ALL SHEAR VALVES, RISERS, PIPING CONNECTIONS AND ALL PENETRATIONS INTO THE SUMPS. SEE TANK ELECTRICAL DRAWINGS FOR CONDUIT AND WIRING REQUIREMENTS.

DISPENSER START-UP: - START UP BY MANUFACTURERS REPRESENTATIVE. CONTRACTOR TO PURGE LINES WITH 200 GALLONS PER HOSE MINIMUM. ANY AIR POCKETS OR START UP PROBLEMS DUE TO IMPROPER INSTALLATION OR INCORRECT WIRING THAT DESTROYS ELECTRONICS WILL BE BILLED BACK TO THE CONTRACTOR

NYC VARIANT: DISPENSER SUMPS SHALL BE BACK FILLED WITH PEA GRAVEL PER NYC CODE. DISPENSER ISLAND SHALL BE EQUIPPED WITH A FIRE SUPPRESSION SYSTEM. SEE FIRE SUPPRESSION DETAILS FOR INSTALLATION REQUIREMENTS.

ARCO BRANDED VARIANT: DISPENSERS INSTALLED WITHOUT CARD READERS IN DISPENSERS. CONTRACTOR TO INSTALL TWO (2) DOUBLE SIDED PAYMENT ISLAND CASHIERS (PIC UNITS) AS SHOWN ON SITE SPECIFIC PLANS. START UP BY MANUFACTURERS REPRESENTATIVE. START UP PROBLEMS DUE TO IMPROPER INSTALLATION OR INCORRECT WIRING THAT DESTROYS ELECTRONICS WILL BE BILLED BACK TO THE CONTRACTOR. REFER TO ARCHITECTURAL CANOPY DRAWINGS FOR ADDITIONAL SITE PREP AND CONDUIT REQUIREMENTS.

CALIFORNIA VARIANT: DISPENSER SUMPS TO BE DOUBLE WALL AND INSTALLED WITH CONTINUOUS HYDROSTATIC MONITORING DEVICE PER AB-2481 REQUIREMENTS

INSTALLATION OF HANGING HARDWARE:

STANDARD: - CONTRACTOR TO INSTALL VAPOR ASSIST HOSES, NOZZLES, SWIVELS AND BREAK AWAY VALVES PER '96" CARB EXECUTIVE ORDER G-70-153-AD. SITES WHERE ORVR COMPATIBLE SYSTEMS ARE NOT REQUIRED

ARCO BRAND VARIANT - CONTRACTOR TO INSTALL ORVR COMPATIBLE BALANCE HOSES, NOZZLES, SWIVELS AND BREAK AWAY VALVES PER CARB EXECUTIVE ORDER G-70-52-AM PER LOCAL STATUTES.

CALIFORNIA VARIANT - CONTRACTOR TO INSTALL ORVR/PHASE II EVR COMPATIBLE HOSES, NOZZLES, SWIVELS AND BREAK AWAY VALVES PER APPLICABLE CARB EXECUTIVE ORDER WITH IN SYSTEM DIAGNOSTICS (ISD) PER LOCAL JURISDICTIONAL REQUIREMENTS.

NEW JERSEY VARIANT - CONTRACTOR TO INSTALL LOW PERMEATION HOSE AND COMPATIBLE HARDWARE. SEE SHEET G.0.6.15

(14) SUMP SENSOR INSTALLATION:

CONTRACTOR TO INSTALL ALL FILL SUMP, TURBINE SUMP AND DISPENSER SUMP SENSORS PER VEEDER ROOT INSTALLATION INSTRUCTIONS. SUMP SENSORS TO BE INSTALLED IN SUMP HOLDERS MOUNTED TO SIDE OF SUMP WALLS SEE TANK DETAIL SHEETS FOR LIQUID SENSOR DETAILS. TURBINE SIDE SUMP SENSORS TO BE MOUNTED AT SIDE OF TANK WHERE PRODUCT PENETRATION INTO SUMP IS MADE AND BELOW LOWEST PENETRATION FITTING WITHIN SUMP AREA AT BOTTOM OF SUMP. SEE TANK ELECTRICAL DRAWINGS FOR MONITORING CONDUIT DETAILS AND SENSOR AND PROBE WIRING DETAILS.

(15) OVERFILL ALARM AND ACKNOWLEDGE SWITCH INSTALLATION:

CONTRACTOR TO INSTALL OVERFILL ALARM & ACKNOWLEDGMENT AS SHOWN. ALARM AND SWITCH TO BE LOCATED TO PROVIDE AN UNOBSTRUCTED VIEW TO TRUCK DRIVER. PROVIDE BOLLARD PROTECTION OF FREE STANDING POLE. SEE SITE SPECIFIC WIRING DIAGRAM AND DETAILS FOR MOUNTING REQUIREMENTS.

(16) VEEDER ROOT CONSOLE INSTALLATION:

CONTRACTOR TO INSTALL "VEEDER ROOT TLS-450 PLUS" TANK AND LINE ALARM CONTROL PANEL IN BUILDING. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR EXACT LOCATION IN BUILDING.

CALIFORNIA VARIANT: TLS-350 PLUS CONSOLE TO BE EQUIPPED WITH ADDITIONAL SENSOR MODULES TO ADDRESS AB-2481 AND CARB ISD REQUIREMENTS. TLS-450 PLUS WILL BE REQUIRED ONCE APPROVED BY CALIFORNIA

NYC VARIANT: CONSOLE TO BE PROGRAMMED FOR MASTER/MASTER ALTERNATE START

(17) CONCRETE SLAB INSTALLATION:

REFER TO PROJECT GENERAL SPECIFICATIONS FOR ADDITIONAL CONCRETE REQUIREMENTS NOT INDICATED ON THESE DRAWINGS.

STANDARD:

- CONCRETE SLAB OVER TANKS WITH A MINIMUM 8" THICK FIBER REINFORCEMENT TO BE USED. REINFORCE CONCRETE SLAB AROUND MANHOLES WITH (4) #4 REBAR, 60" IN LENGTH FOR THE LARGE MANHOLES AND 30" FOR SMALL MANHOLES PLACE REBAR 6" FROM SIDES OF BOX. SEE RECIPE BELOW.
- CONCRETE DRIVE SLAB AT CANOPY FUELING AREA WITH A MINIMUM 6" THICK FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.
- CONCRETE FORMLESS ISLAND WITH A 6" HEIGHT ABOVE FINISHED GRADE FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.

NYC VARIANT:

- CONCRETE SLAB OVER TANKS WITH A MINIMUM 10" THICKNESS REINFORCED WITH C#5 REBARS @ 12" O.C. EACH WAY TOP & BOTTOM. REINFORCE CONCRETE SLAB AROUND MANHOLES WITH (4) #4 REBAR, 60" IN LENGTH FOR THE LARGE MANHOLES AND 30" FOR SMALL MANHOLES PLACE REBAR 6" FROM SIDES OF BOX. SEE RECIPE BELOW.
- CONCRETE SLAB BELOW TANKS WITH A MINIMUM 12" THICKNESS, REINFORCED WITH TWO LAYERS OF 6X6-W7.4.XW7.4 ON 2" STEEL CHAIRS TOP & BOTTOM. SEE RECIPE BELOW.
- LOAD BEARING 12"x16" CONCRETE BLOCK PIERS FILLED WITH TYPE "M" MORTAR SPACED NO MORE THAN 3'-2" APART. FOR ALTERNATE SONOTUBE PIER CONFIGURATION A MINIMUM 16" DIAMETER CONCRETE PIER WITH #3 REBAR HORIZONTAL TIES SPACED EVERY 2' VERTICALLY AND (5) #5 VERTICAL REBARS SPACE EQUALLY
- CONCRETE DRIVE SLAB AT CANOPY FUELING AREA WITH A MINIMUM 6" THICK, REINFORCED WITH TWO LAYERS OF 6X6-W5.5XW5.5 ON 2" STEEL CHAIRS TOP & BOTTOM.
- CONCRETE FORMLESS ISLAND WITH A 6" HEIGHT ABOVE FINISHED GRADE FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.
- CONCRETE WALKWAY WITH A MINIMUM 4" THICK FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.
- CONCRETE DRIVEWAY WITH A MINIMUM 7" THICK FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.

CALIFORNIA VARIANT:

- CONCRETE SLAB OVER TANKS WITH A MINIMUM 8" THICK FIBER REINFORCEMENT TO BE USED. REINFORCE CONCRETE SLAB AROUND MANHOLES WITH (4) #4 REBAR, 60" IN LENGTH FOR THE LARGE MANHOLES AND 30" FOR SMALL MANHOLES PLACE REBAR 6" FROM SIDES OF BOX. SEE RECIPE BELOW.
- THICKEN CONCRETE SLAB AT DISPENSER SUMPS AND TANK FILL AND TURBINE SUMPS SUCH THAT THE BOTTOM OF CONCRETE IS BELOW THE TOP OF THE TERMINATION OF THE SECONDARY CONTAINMENT OF THE SUMPS PER AB-2481 REQUIREMENTS.
- CONCRETE DRIVE SLAB AT CANOPY FUELING AREA WITH A MINIMUM 6" THICK FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.
- CONCRETE FORMLESS ISLAND WITH A 6" HEIGHT ABOVE FINISHED GRADE FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.

CONCRETE MIX RECIPE. PREMIX UNIFORMLY THROUGHOUT CONCRETE. REINFORCEMENT BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.

UNLESS OTHERWISE NOTED ON THESE DRAWINGS:

- CONCRETE - REGULAR WEIGHT HARD ROCK CONCRETE (150 LBS/CU FT)
- CEMENT - TYPE I/II, SULFATE RESISTANT
- AGGREGATES - ASTM C33, (MAXIMUM SIZE 3/4 INCHES)
- 28 DAY CONCRETE STRENGTH (f'c):
 - 4,000 PSI - SLAB (DESIGN BASED ON 2,000 PSI NO SPECIAL INSPECTION REQUIRED)
 - SLUMP - 3"+ 1" - 4" MAXIMUM AT POINT OF PLACEMENT
 - SHRINKAGE - 0.05% MAXIMUM
 - ENTRAINED AIR RANGE - 2% TO 4%

CONCRETE SHALL BE NORMAL WEIGHT WITH A MIX OF 1 : 2 1/2 : 3 1/2, WITH A MAXIMUM 7 1/2 GALLONS OF WATER PER SACK. ADD 3.0 LB MACRO (STRUCTURAL) FIBER PER CU. YD. REINFORCING CONCRETE.

REINFORCING STEEL FOR TANK SUMP CAGES SHALL BE #4 REBAR.

MAINTAIN CONCRETE IN A MOIST CONDITION FOR AT LEAST 7 DAYS AFTER PLACEMENT.

PLACE CONCRETE DIRECTLY FROM TRUCK INTO FORMS. DO NOT PUMP CONCRETE UNLESS SPECIAL INSPECTION, IN ACCORDANCE WITH CHAPTER 3 OF THE IBC, IS PROVIDED.

SUBMIT MIX DESIGNS, WITH STRENGTH AND SHRINKAGE TEST RESULTS, TO OWNER'S ENGINEER AT LEAST 7 DAYS BEFORE PLACING CONCRETE.

CONSOLIDATE CONCRETE IN PLACE USING A MECHANICAL VIBRATOR.

BEFORE PLACING CONCRETE, SECURE REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND OTHER INSERTS IN POSITION TO PREVENT MOVEMENT.

MATERIALS AND WORKMANSHIP SHALL CONFORM TO A.C.I. - 318 (SPECIFICATIONS OF THE DESIGN AND PLACEMENT OF CONCRETE).

MANHOLE CROWNS:

ALL MANHOLE OPENINGS ON THE TANK SLAB SHALL BE INSTALLED WITH A 1-1/2" CROWN (1" RISE OVER 12" RUN) OF CONCRETE TO PREVENT WATER INTRUSION INTO THE MANHOLE. THE OWNER'S ENGINEER, THE BP PROJECT MANAGER WILL BE REQUIRED TO SIGN OFF ON THIS ITEM ON THE TANK INSTALLATION CHECKLIST.

PRODUCT IDENTIFICATION MARKINGS:

CONTRACTOR TO INSTALL PRODUCT IDENTIFICATION TAGS AT ALL MANHOLE OPENING PER SITE SPECIFIC DETAIL DRAWINGS.

(18) TESTING:

CONTRACTOR SHALL COMPLETE ALL TESTING ACCORDING TO MANUFACTURER'S INSTRUCTIONS FOR TANKS AND PIPING AND PER INDUSTRY RECOMMENDED PRACTICES (API & PE). CONTRACTOR SHALL COMPLETE ALL WARRANTY VALIDATION TESTING AND PROVIDE DOCUMENTATION TO OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER.

PIPE TESTING:

ISOLATE THE PRODUCT TANKS AND DISPENSERS DURING PRESSURE TESTING OF LINES IN ORDER TO PREVENT DAMAGE.

THE DESIGN, ASSEMBLY, AND TESTING OF THE PIPING SYSTEM SHALL BE IN CONFORMANCE WITH THE APPLICABLE SECTION OF ANSI-B31, AMERICAN NATIONAL STANDARD CODE FOR PRESSURE PIPING, NFPA 30, FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, AND AMERICAN PETROLEUM INSTITUTES RECOMMENDED PRACTICE 1615.

DURING CONSTRUCTION, BEFORE BACK FILLING, PIPING SHOULD BE ISOLATED FROM THE TANKS AND SUBJECTED TO A PIPE TIGHTNESS TEST. OTHER TESTING METHODS MAY ALSO BE ACCEPTABLE IF APPROVED BY THE AUTHORITY HAVING JURISDICTION. A CONSTRUCTION PIPE TEST IS CONDUCTED AS FOLLOWS:

A. THE PRODUCT PIPING TO BE TESTED IS ISOLATED AND PRESSURIZED WITH COMPRESSED AIR TO 150 PERCENT OF THE MAXIMUM SYSTEM OPERATING PRESSURE (OR A MINIMUM OF 50 POUNDS PER SQUARE INCH GAUGE; MAXIMUM AS RECOMMENDED BY COMPONENT MANUFACTURER) FOR AT LEAST 30 MINUTES AND NOT MORE THAN 1 HOUR.

B. ALL PIPING SURFACES INCLUDING VALVES, FITTINGS, JOINTS, AND SO FORTH ARE WETTED WITH A SOAP SOLUTION AND INSPECTED FOR BUBBLES.

C. LEAKS, AS INDICATED BY BUBBLES, ARE REPAIRED OR REPLACED, AND THE PIPING RE-TESTED AS NECESSARY.

D. THE INNER PIPE WALLS SHALL BE TESTED FOR TIGHTNESS BEFORE CLOSING THE OUTER PIPE. THE OUTER PIPE MUST BE TESTED AT A 5 POUNDS PER SQUARE INCH GAUGE MAXIMUM BEFORE BACKFILLING. CARE SHOULD BE TAKEN TO PREVENT OVER PRESSURIZATION OF THE INTERSTICE. IT IS IMPORTANT THAT THE MANUFACTURER'S INSTRUCTIONS BE FOLLOWED. REPEAT BOTH TESTS AFTER BACKFILLING.

WHEN THE PIPING IS INSTALLED AND OPERATIONAL, A HYDROSTATIC TEST OF THE PIPING, AS SPECIFIED IN NFPA 329, MAY BE REQUIRED BY CODES.

CAUTION: EXTREME CARE SHOULD BE EXERCISED IN CONDUCTING PIPE TIGHTNESS TEST. PRESSURIZED PIPING IS POTENTIALLY DANGEROUS BECAUSE OF THE POSSIBILITY OF VIOLENT RUPTURE. THIS TEST SHOULD BE CONDUCTED WITH MINIMUM EXPOSURE OF PERSONNEL AND WITHOUT WORK OR DISTURBING THE PIPING BEING TESTED. WHEN THE TEST IS COMPLETED, THE PIPING PRESSURE CAN BE REDUCED OR RELEASED COMPLETELY FOR THE REMAINDER OF CONSTRUCTION. REFER TO THE PIPING MANUFACTURER'S RECOMMENDATIONS.

N.O.V. PIPING SHALL BE TESTED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

VAPOR RECOVER PIPING MUST PASS ALL CARB BLOCKAGE TESTING RELATIVE TO TIGHTNESS, PRESSURE DECAY, & BLOCKAGE RATES. A/L TESTING IS REQUIRED FOR "ASSISTED" STAGE II SYSTEMS (IF INSTALLED). NOTIFY THE BP PROJECT MANAGER TO COORDINATE.

CONTAINMENT SUMP TESTING:

ALL TANK SUMPS AND UNDER DISPENSER CONTAINMENT SUMPS SHALL BE HYDROSTATICALLY TESTED (LAKE TEST) WITH STANDING WATER ABOVE THE LEVEL OF THE HIGHEST PIPE OR CONDUIT PENETRATION FOR A PERIOD OF 24 HOURS AFTER ALL WORK IS COMPLETED TO INSURE THAT THE SUMPS ARE WATERTIGHT OR CERTIFIED USING SUMP MANUFACTURER'S APPROVED TEST PROCEDURE TO INSURE THAT SUMPS ARE WATERTIGHT PER UT REGULATIONS. THE OWNER'S ENGINEER MUST SIGN OFF ON THIS TESTING ON THE TANK INSTALLATION CHECKLIST.

CALIFORNIA VARIANT: ALL DOUBLE WALL SUMPS SHALL BE BRINE FILLED AND INSPECTED FOR TIGHTNESS THROUGHOUT THE INSTALLATION PROCESS ONCE SUMPS HAVE BEEN FILLED WITH BRINE SOLUTION.

FINAL SYSTEM TESTING:

AFTER COMPLETE INSTALLATION OF THE ENTIRE FUEL SYSTEM AND ALL PAVING, THE OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER, SHALL ARRANGE FOR A PRECISION TANK AND LINE TEST TO BE PERFORMED ON THE COMPLETE SYSTEM. SUCCESSFUL COMPLETION OF THIS TEST WILL BE REQUIRED FOR FINAL APPROVAL. THIS TEST SHALL ENSURE THAT ALL NEW TANK & PIPING SHALL MEET ALL FEDERAL, STATE, & LOCAL REQUIREMENTS FOR TIGHTNESS INTEGRITY. PRIOR TO START-UP OF SYSTEM, OPERATIONALLY TEST ALL OTHER EQUIPMENT, INCLUDING IMPACT (SHEAR) VALVES, LINK LEAK DETECTORS, LEAK DETECTOR ALARMS, AND EMERGENCY SHUTDOWN SWITCHES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONTRACTOR SHALL PROVIDE (3) COPIES OF ALL CERTIFICATIONS & TEST RESULTS TO OWNER'S REPRESENTATIVE OR HIS AGENT, THE BP PROJECT MANAGER.

TANK SYSTEM TEST METHOD CALIFORNIA ONLY AB-2481:

BEFORE THE UNDERGROUND STORAGE TANK IS PLACED INTO USE, THE UNDERGROUND STORAGE TANK SHALL BE TESTED AFTER INSTALLATION USING ONE OF THE FOLLOWING METHODS TO DEMONSTRATE THAT THE TANK IS PRODUCT TIGHT:

- ENHANCED LEAK DETECTION (ELD) BY TRACER CORPORATION.
- AN INERT GAS PRESSURE TEST THAT HAS BEEN CERTIFIED BY A THIRD PARTY AND APPROVED BY THE BOARD.
- A TEST METHOD DEEMED EQUIVALENT TO ENHANCED LEAK DETECTION OR AN INERT GAS PRESSURE TEST BY THE BOARD IN REGULATIONS ADOPTED PURSUANT TO THE APPLICABLE CHAPTER IN THE CODE. AN UNDERGROUND STORAGE TANK INSTALLED AND TESTED IN ACCORDANCE WITH THIS SECTION IS EXEMPT FROM THE REQUIREMENTS OF SECTION 25292.5.

(19) CHECKING FOR PRODUCT QUALITY: INITIAL SITE COMMISSIONING RECOMMENDED PRACTICES

BEFORE OPENING YOUR STORE, IT IS APPROPRIATE AND PROPER PROCEDURE TO CHECK YOUR FUELING EQUIPMENT TO MINIMIZE POSSIBLE PRODUCT QUALITY ISSUES. THIS GUIDANCE MUST BE FOLLOWED TO ENSURE THAT PRODUCT QUALITY HAS BEEN MAINTAINED, AND IS ACCEPTABLE FOR OUR CUSTOMERS.

THE UNDERLYING ASSUMPTION IS THAT THE GENERAL CONTRACTOR, WHO WAS RESPONSIBLE FOR BUILDING YOUR STATION, HAS PROPERLY PERFORMED THEIR JOB AND CHECKED THAT TANKS AND PIPING HAVE BEEN PROPERLY INSTALLED, TESTED, CLEANED, AND LABELED AT A MINIMUM. ANY BP AREA MAINTENANCE MANAGER, OR BP PROJECT MANAGER, HAS A CHECKLIST SHOWING KEY POINTS TO LOOK FOR BEFORE ACCEPTING A SITE AS "COMPLETE" FROM THE CONTRACTOR. SOME KEY AREAS ARE AS FOLLOWS:

1. CONFIRM THAT APPROPRIATE PRODUCT TAGS HAVE BEEN INSTALLED AT THE FILL RISERS.

2. PERFORM A FINAL INSPECTION FOR THE PRESENCE OF WATER IN THE PIPING TO THE DISPENSERS BY OPENING THE TURBINE DISCHARGE CONNECTION AT EACH TURBINE SUMP, AND OPENING/REMOVING THE BLEEDER/TEST PLUG ON IMPACT VALVE. ANY TRAPPED LIQUIDS SHOULD DRAIN BACK TO THE TURBINE SUMP FOR REMOVAL.

3. CONFIRM THAT BOTH GASOLINE AND DIESEL DISPENSERS ARE INSTALLED WITH A MINIMUM (MEANING A MESH SIZE NOT GREATER THAN) 10 MICRON FILTER. ANY FACTORY INSTALLED FILTER AFTER STARTUP MUST BE DISCARDED IN ACCORDANCE WITH USED FUEL FILTER WASTE MANAGEMENT ENVIRONMENTAL GUIDELINES.

4. CONFIRM THAT PROPER DECALS, TAX NUMBERS, AND OTHER SIGNAGE REQUIRED PER PLANS, REGULATORY REQUIREMENTS, AND CONTRACTUAL AGREEMENTS ARE INSTALLED.

5. PERFORM A FINAL INSPECTION FOR THE PRESENCE OF WATER WITHIN THE UNDERGROUND STORAGE TANKS, OR IN THE PIPING GOING TO THE DISPENSERS. INSPECTION FOR WATER IN THE TANK SHALL BE PERFORMED USING SARGEL'S WATER FINDING PASTE (OR EQUAL), AND CONDUCTED AT BOTH ENDS OF THE TANK. IF LEVELS OF WATER GREATER THAN 1/4" ARE DETECTED, PROCEED WITH WATER ELIMINATION PROCEDURES, AND REQUEST THAT THE CONTRACTOR DO THIS AS PART OF THEIR SCOPE OF WORK.

6. THE BP REPRESENTATIVE (REGIONAL ACCOUNT EXECUTIVE OR FRANCHISE CONSULTANT) SHALL BE INFORMED OF ALL MAJOR MILESTONES LEADING UP TO SITE START-UP. BP RESERVES THE RIGHT TO REQUEST COPIES OF INSPECTION REPORTS BEFORE INITIAL SITE START-UP.

7. AFTER DELIVERY OF THE FIRST LOAD OF PRODUCTS, EACH PRODUCT MUST BE TESTED AND THE RESULTS PROVIDED TO THE BP AREA MAINTENANCE MANAGER AND TO THE BP PROJECT MANAGER, PRIOR TO ANY SALE.

COSTS OF THE SAMPLING AND ANALYSIS ARE TO BE INCLUDED IN THE CONTRACTOR'S SCOPE OF WORK. A LABORATORY CERTIFIED TO CONDUCT FUELS SAMPLING AND TESTING MUST BE USED.

(20) TANK ELECTRICAL SPECIFICATIONS:

GENERAL:

ALL MATERIALS AND WORKMANSHIP WILL CONFORM TO THE MOST RECENT EDITIONS OF THE NATIONAL ELECTRICAL CODE, N.E.T.A., B.I.C.S.I., U.S.C. & NFPA AS REQUIRED BY THE ENGINEER, LOCAL AND STATE CODES AND ORDINANCES, AMERICANS WITH DISABILITIES ACT, E.P.A., AND UTILITY COMPANY REQUIREMENTS.

THE CONTRACTOR WILL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS WHICH MAY AFFECT HIS BID OR WORK. NO ALLOWANCES WILL BE MADE AFTER THE BID FOR EXISTING CONDITIONS OR THE CONTRACTORS FAILURE TO VERIFY EXISTING CONDITIONS.

FURNISH AND INSTALL A COMPLETE ELECTRICAL SYSTEM AS DEPICTED FROM THE PLANS AND SPECIFICATIONS HEREIN - AS NOTED OR IMPLIED - NOT LIMITED TO WHAT IS SHOWN.

ALL DRAWINGS ARE SCHEMATIC IN NATURE AND ALL APPURTENANCES NOT INDICATED TO MAKE A WORKING SYSTEM MUST BE INCLUDED IN CONTRACTOR'S BID.

IF THERE APPEARS TO BE ANY ITEMS IN CONFLICT WITH THE DRAWINGS, INCONSISTENCIES WITH DESIGN OR INTENT, OR NEED FOR CLARIFICATION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLARIFY THESE ITEMS PRIOR TO BID IN WRITING WITH THE ENGINEER. IF THE CONTRACTOR FAILS TO CLARIFY ANY QUESTIONS OR INCONSISTENCY, THEY ACCEPT RESPONSIBILITY TO CORRECT AT THEIR COST ANY SUCH ITEM SO AS TO MEET INTENT AS DEFINED BY ENGINEER.

UTILITIES:

CONTRACTOR WILL SUPPLY INFORMATION AS REQUIRED TO ALL SERVING UTILITIES IN A TIMELY MANNER TO PROVIDE SERVICE REQUIRED.

RSG FITTINGS & CONDUIT:

RGS FITTINGS MUST BE STEEL COMPRESSION TYPE; EACH WITH CODE SIZED COPPER BOND WIRE. MINIMUM CONDUIT 1" C. EXCEPT AS NOTED. ALL WORK WILL BE IN CONDUIT; COMPLETED SYSTEM REAMED, AND SWABBED PRIOR TO CONDUCTOR INSTALL.

ALL CONDUITS TO BE CONCEALED EXCEPT TO SURFACE MOUNTED PANELS. TIE WIRE, PERFORATED STRAPS, OR OTHER PIPING OR CONDUIT ARE NOT ACCEPTABLE SUPPORTS. NO TIE WIRE WILL BE ALLOWED ON PROJECT.

CALIFORNIA VARIANT - THE LAST 2 FEET (MINIMUM) OF ALL CONDUITS THAT ARE ROUTED TO AND PENETRATE TANK SUMPS, DISPENSER SUMPS AND VENT TRANSITION SUMPS SHALL BE PVC COATED RIGID STEEL GALVANIZED WHERE PENETRATIONS TO THE BRINE FILLED SUMPS ARE MADE. ROBROY CONDUIT MUST BE USED WITH THE BRAVO PENETRATION FITTING - NO SUBSTITUTE PERMITTED.

CONDUCTORS:

CONDUCTORS TO BE 600V., COPPER (98% CONDUCTIVITY). BRANCH CIRCUITS TO HAVE THHN/THWN GAS & OIL RESISTANT INSULATION.

CONDUCTORS WILL BE STRANDED, HYDRAULIC CRIMP ALL CONNECTIONS. CONDUCTOR INSULATION WILL BE CONTINUOUSLY COLOR COATED. ALL GROUNDING/BUILDING CONDUCTORS WILL BE MULTI-CONDUCTOR TYPE (U.L. LABELED - ROPE STRAND BUILDING WIRE CLASS "M") BARE OR INSULATED AS NOTED OR REQUIRED.

MINIMUM LINE VOLTAGE WIRE SIZE IS #12 AWG (STRANDED) FOR LINE VOLTAGE WIRING DEVICES TO BE SPECIFICATION GRADE. MINIMUM 20 AMPS FOR RECEPTACLES, HUBBELL OR ENGINEER APPROVED. ALL SPECIAL RECEPTACLES AND GROUND FAULT PROTECTED DEVICES MUST BE PERMANENTLY MARKED WITH ENGRAVED COVER PLATES.

FILL RISER GROUNDING:

ALL RISERS IN THE FILL SUMP SHALL BE GROUNDED AND BONDED.

INSTALL 1/2" x 10'-0" LONG CONTINUOUS COPPER CLAD GROUND ROD IN NATIVE SOIL FOR TANK SYSTEM GROUNDING. PROVIDE MANHOLE ACCESS TO GROUND ROD AND COPPER GROUND WIRE, SEE DETAILS ON SHEET G.0.7

EMERGENCY SHUTDOWN:

ENSURE THAT THE E-STOP DISCONNECTS THE HOT AND NEUTRAL WIRES TO THE DISPENSERS
ENSURE THAT THE E-STOP DISCONNECTS THE HOT AND NEUTRAL WIRES TO THE TURBINES
ENSURE THAT THE TURBINE PUMPS ARE ISOLATED TO AVOID FEEDBACK VOLTAGE
ENSURE THAT THE E-STOP DISCONNECTS THE LOW VOLTAGE WIRES TO THE DISPENSER (I.E. DATA, INTERCOM, MEDIA)
ENSURE THAT THE TURBINE AND DISPENSER BREAKERS ARE CLEARLY IDENTIFIED / LABELED
ENSURE THAT EACH DISPENSER HAS ITS OWN DEDICATED CIRCUIT
ENSURE THAT EACH PUMP HAS ITS OWN DEDICATED CIRCUIT
ENSURE THAT THE DISPENSING EQUIPMENT IS GROUNDED PER NEC
ENSURE THAT ALL OF THE DISPENSING EQUIPMENT MEETS NEC LOCK OUT/TAG OUT CODES.

CONTRACTOR PERFORMANCE:

THE CONTRACTOR WILL GUARANTEE ALL MATERIALS AND WORKMANSHIP FURNISHED BY HIM UNDER THIS CONTRACTOR FOR A PERIOD OF TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK OF THIS CONTRACT BY THE OWNER AND THE ENGINEER AND PROVIDE A BOND TO VALIDATE THIS GUARANTEE. ANY DEFECTS DEVELOPING WITHIN THE PERIOD TRACEABLE TO MATERIALS OR WORKMANSHIP PERFORMED HERE UNDER, WILL BE MADE GOOD AT THE EXPENSE OF THE CONTRACTOR NOT THE OWNER OR ENGINEER. THE CONTRACTOR WILL ACCEPT AND FULLY UNDERSTAND THIS PROVISION PRIOR TO CONTRACT BEING AWARDED, AS NO CLAIM FOR EXTRA COMPENSATION WILL BE ALLOWED FOR CORRECTION OF FAULTY WORK OR DEFECTIVE MATERIALS, ANYTIME DURING THE CONSTRUCTION PERIOD, THE OWNERS REPRESENTATIVES AND THE ENGINEER RETAIN THE RIGHT TO REQUIRE THE CONTRACTOR TO REMOVE AND REINSTALL ANY EQUIPMENT OR MATERIALS NOT FOLLOWING THE STANDARDS AS PRESENTED HEREIN OR ON THE DRAWINGS WITHOUT COST TO THE OWNER OR ENGINEER.

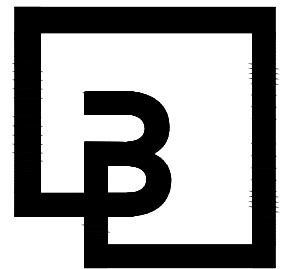
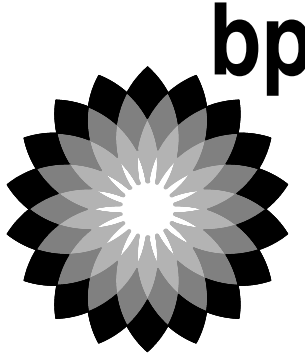
CONTRACTOR WILL PROVIDE PROOF OF PERFORMANCE BOND WITH SHOP DRAWINGS

PROVIDE 3 SETS OF SHOP DRAWINGS & SAMPLES FOR ALL EQUIPMENT, PRIOR TO ORDERING AND IN A TIMELY MANNER (AS DETERMINED BY THE ENGINEER) SO NOT TO DELAY WORK, TO THE ENGINEER FOR APPROVAL. (CONDUIT, SWITCHES, CONDUCTORS, ECT.) WHERE SUBSTITUTIONS ARE MADE. CONTRACTOR WILL INCLUDE COMPARISON DATA & SAMPLES FOR BOTH THE SUBSTITUTE AND SPECIFIED ITEMS FOR REFERENCE PURPOSES.

CONTRACTOR WILL PROVIDE LETTER TO ENGINEER CONFIRMING ALL EQUIPMENT AND TERMINATIONS ARE PROPERLY TORQUED - SIGNED BY LICENSED CONTRACTOR.

CONTRACTOR WILL PROVIDE ACCURATE AND COMPLETE "AS BUILT" DRAWINGS TO OWNER AND ENGINEER AT TIME OF OWNER ACCEPTANCE. ALL "AS BUILT" DRAWINGS TO BE 4 SETS OF "BLUELINES" OR PHOTO COPY PRINTS 24" X 36" AND TWO SETS (OWNER/ENGINEER) ON MAGNETIC MEDIA & AUTOCAD 2010 (BY AUTODESK) COMPATIBLE. FAILURE TO DO SO WILL CONSTITUTE FORFEITURE OF ALL PAYMENTS DUE AND HOURLY RATES OR \$99.00/HOUR/MAN MINIMUM TO ENGINEER PAID BY CONTRACTOR FOR "AS BUILT" DEVELOPMENT.

CLIENT:

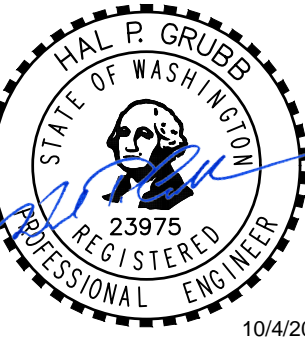


Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
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SEAL:



10/04/2023

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF	ALLIANCE ZADG:
CHECKED BY: OV	BP REPM:
DRAWN BY: NP/RF	ALLIANCE FRM:
VERSION: V-15.0	PROJECT NO:
01/01/2023	21730

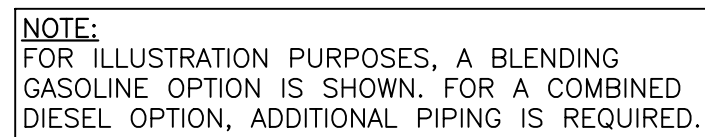
DRAWING TITLE:

TANK AND PIPING
SCOPE OF WORK
AND GENERAL NOTES
(FRP 2 OF 2) TLS-450

SHEET NO:

G.0.2.2

SCALE: NTS



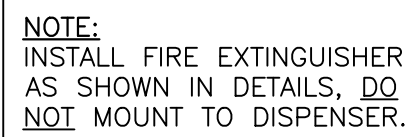
NOTE:
IN COMBINED TRENCH, MIN. 12'
BETWEEN STAGE II & PRODUCT
PIPING (C.L.)

NOTE:
INDICATES ITEMS FOUND
ON MATERIALS LIST SHEETS

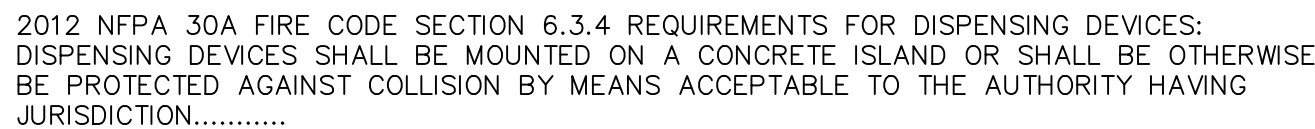
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SCALE: 1" = 1'-0"

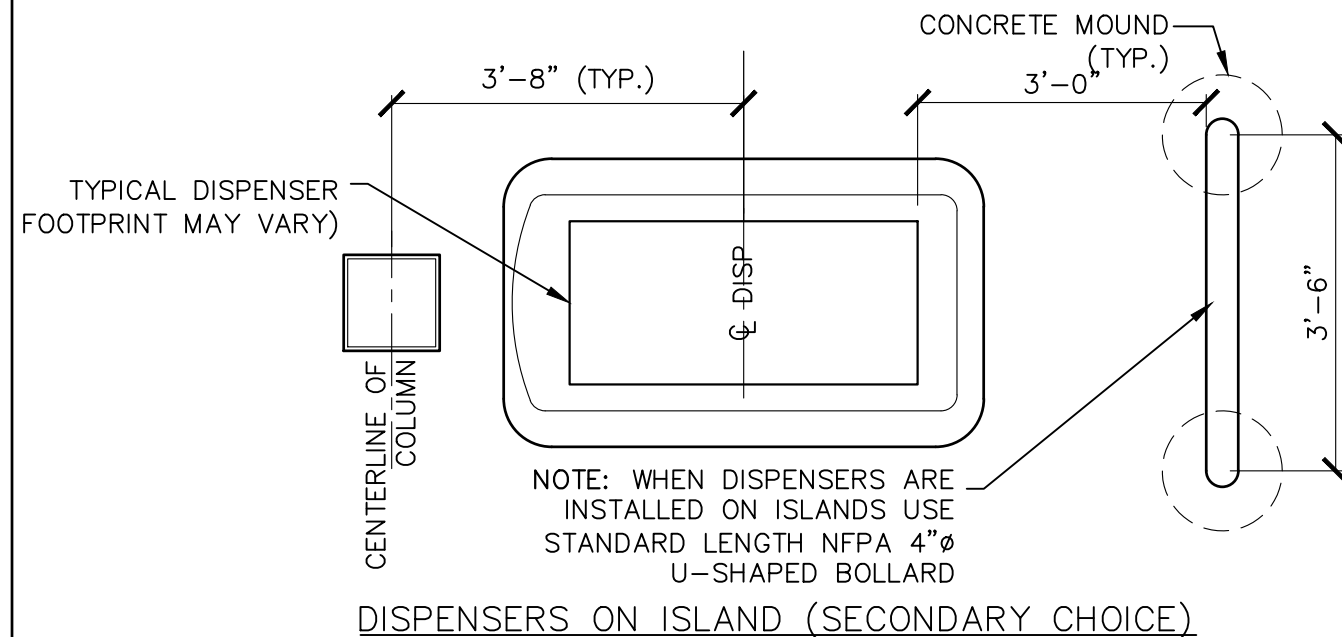


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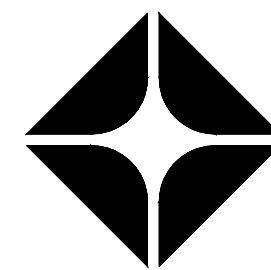
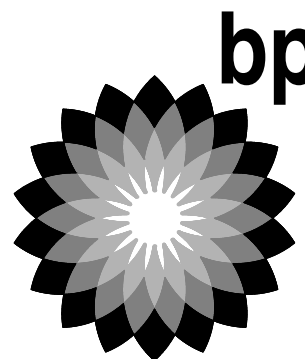


NOTE:
THIS BOLLARD AND FOUNDATION SATISFIES BOTH
CONSTRAINED & NON-CONSTRAINED SOIL
CONDITIONS. USE THIS DESIGN IN JURISDICTIONS
THAT FOLLOW NFPA 30/30A.

NOTE: THIS DETAIL TO BE USED WHEN DISPENSERS ARE MOUNTED ON ISLANDS AND WHEN THE DISPENSER ISLANDS ARE 6 INCHES OR MORE IN HEIGHT

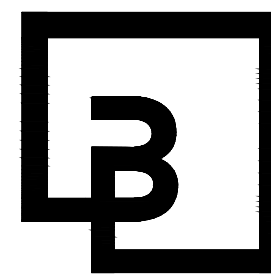


CLIENT



ARCO

BP WEST COAST PRODUCTS, LLC



**Barghausen
Consulting Engineers, Inc**

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Kent, WA 98032
425.251.6222
barghausen.com

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SEAL



10/4/202

DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/BE	ALLIANCE Z&DM:
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CHECKED BY:	OV	RP	RPM:
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CRANK BY:	ALLIANCE BY:
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NP/RF	NP/RF
NP/RF	NP/RF

VERSION: V-15.0	PROJECT NO: 2172
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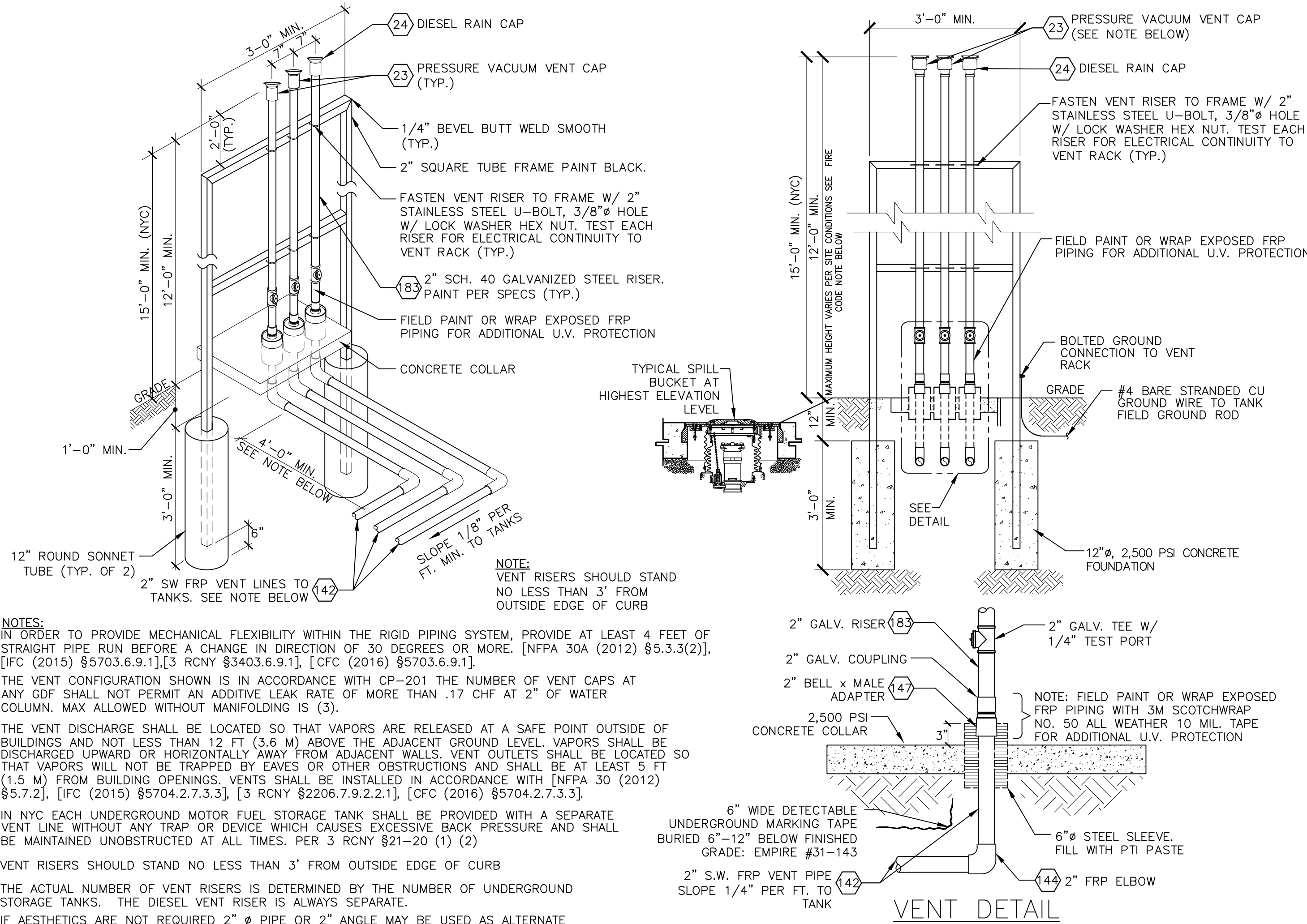
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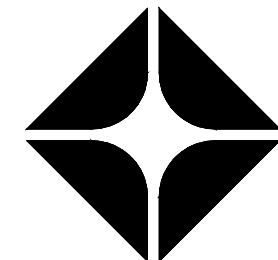
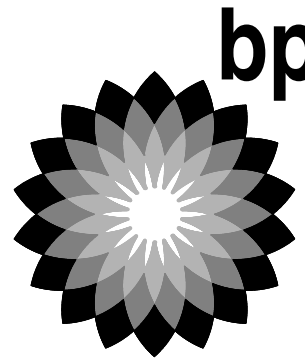
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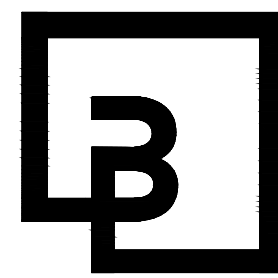
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CLIENT:



BP WEST COAST PRODUCTS, LLC

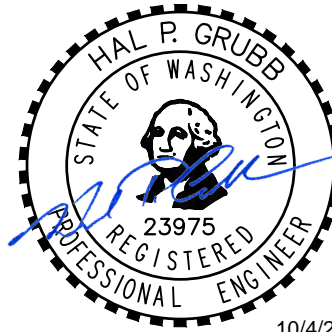


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SEAL:



DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF	ALLIANCE ZADON:
CHECKED BY: OV	BP REPM:
DRAWN BY: NP/RF	ALLIANCE PM:
VERSION: V-15.0	PROJECT NO:
01/01/2023	21730

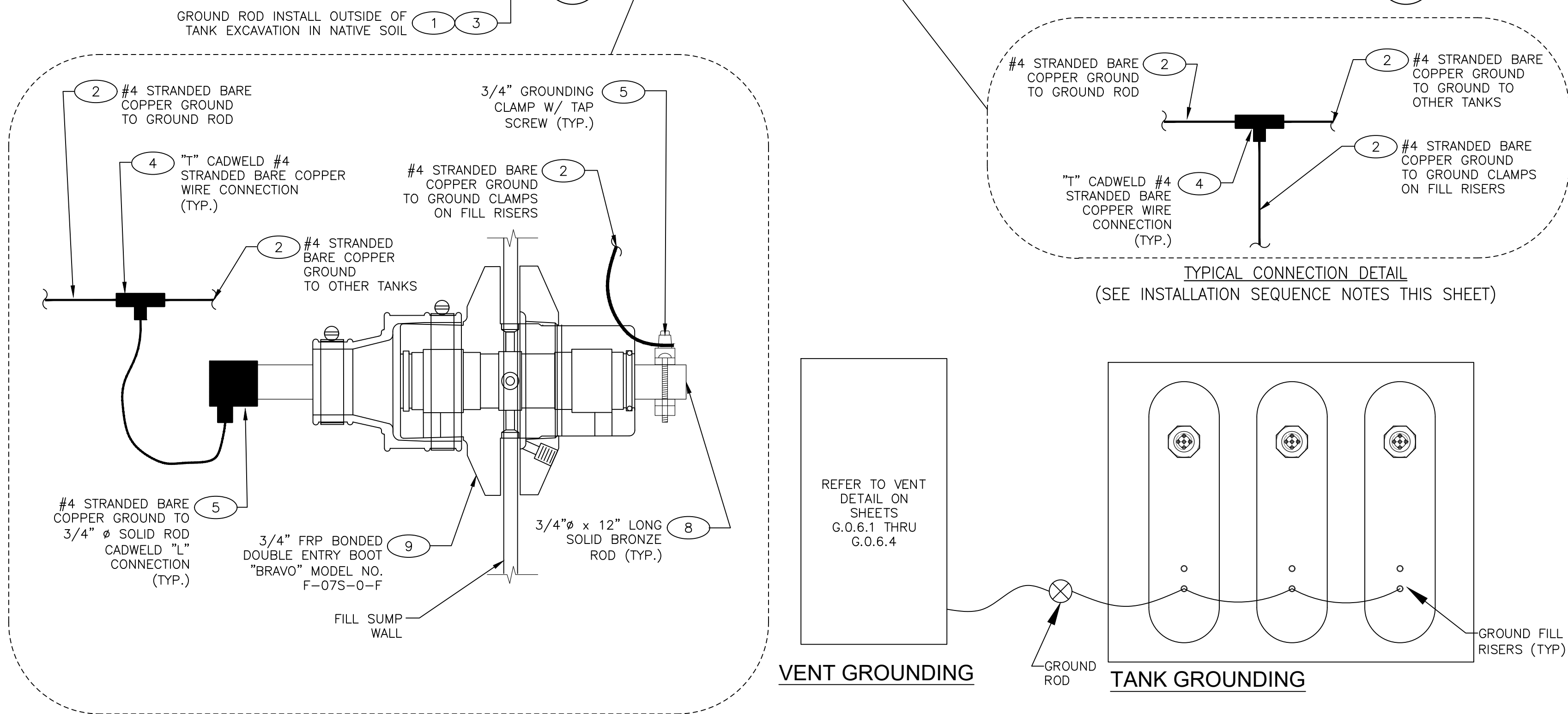
DESIGN INTENT
VENT STACK
INSTALLATION DETAILS
(STANDARD)

SHEET NO:

G.0.6.1

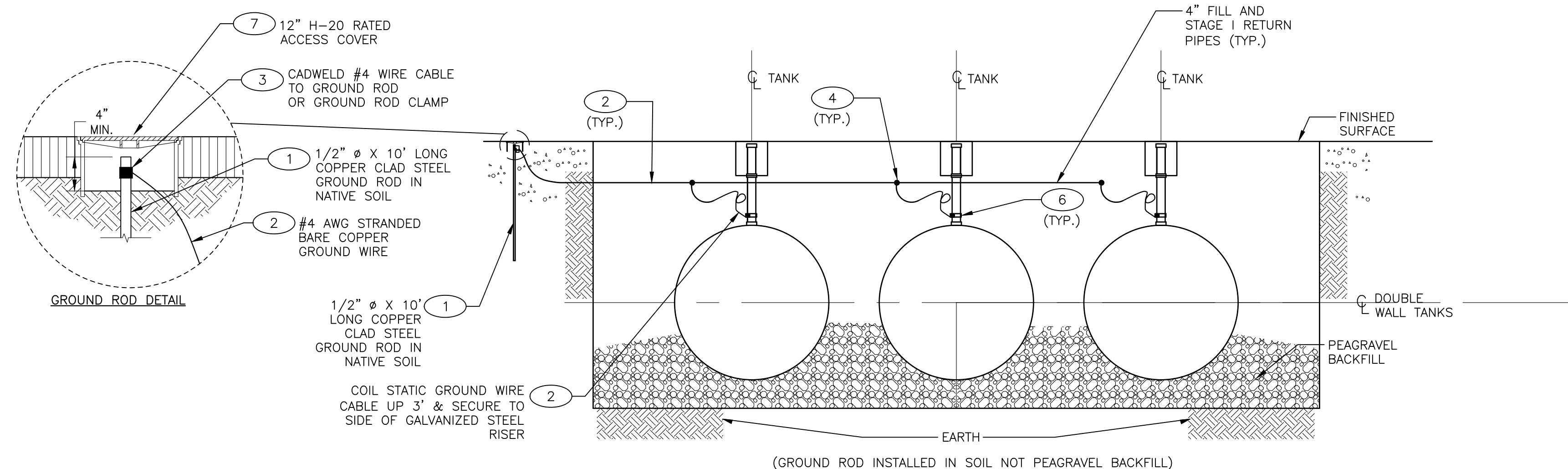
EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION
1	5/8" Ø X 10' LONG COPPERBONDED GROUND ROD: "ERITECH" PART NO. 615800 (UL LISTED) OR EQUIVALENT
2	#4 AWG STRANDED BARE COPPER GROUND WIRE. "ERITECH" PART NO. A809A01F100 OR EQUIVALENT
3	CADWELD #4 WIRE CABLE TO GROUND ROD CONNECTION "THERMOWELD" PART NO. M-2109 (4 WIRE CONNECTION), USE WELD METAL #65
4	CADWELD "T" CONNECTION FOR #4 BARE STRANDED WIRE CABLES. "THERMOWELD" PART NO. M-221, USE #32 WELD METAL.
5	CADWELD "CABLE TO VERTICAL STEEL" CONNECTION FOR #4 BARE STRANDED WIRE CABLES TO 4" RISER PIPE. "THERMOWELD" PART NO. M-190, USE #25CP WELD METAL.
6	4" NPT ADJUSTABLE COPPER GROUND CLAMPS, BURNDY GAR224C 4AWG GROUND CONNECTOR
7	OPW 104A-1200WT 12" H-20 RATED, BOLT DOWN WATER TIGHT ACCESS COVER (USED IN DRIVE AREAS) OPW 104A-1200 12" H-20 RATED, GRAVITY LID ACCESS COVER (USED IN PLANTER AREAS)
8	3/4" DIAMETER x 12" LONG SOLID BRONZE ROD.
9	3/4" SINGLE WALL ENTRY FITTING "BRAVO" MODEL NO. F-07S-0-F ADHESIVE- EP100 2 NEEDED PER PENETRATION



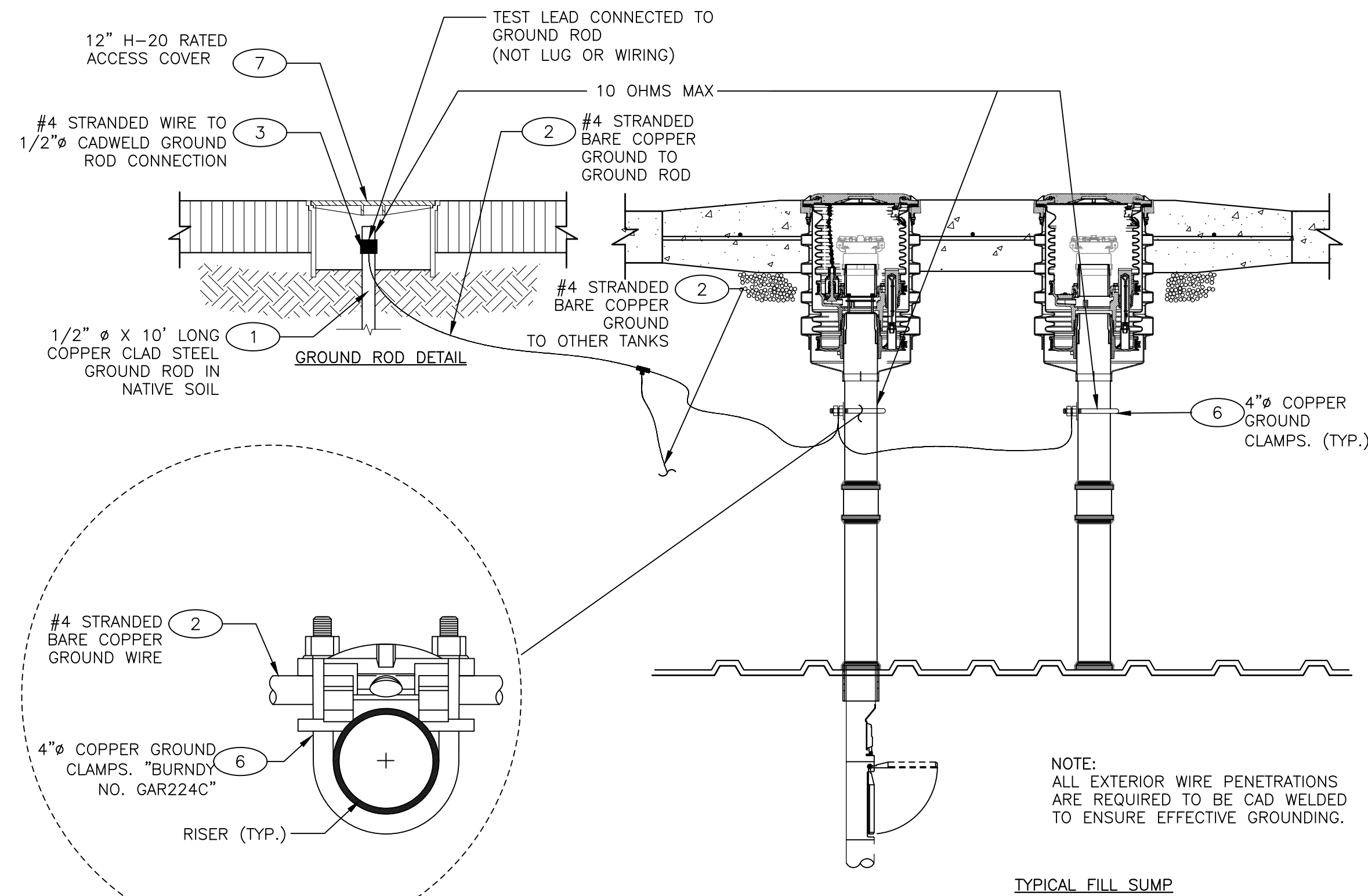
A: STATIC GROUNDING PLAN VIEW & BONDING DETAILS

SCALE: NONE



B: STATIC GROUNDING SECTION & BONDING DETAILS

SCALE: NONE



C: TESTING EXPOSED GROUND SYSTEM & BONDING DETAILS

SCALE: NONE

GENERAL SHEET NOTES

NOTES:

ALL STAGE I FILL AND VAPOR RISER ADAPTERS SHALL BE ELECTRICALLY GROUNDING TO PROMOTE THE RELAXATION OF STATIC CHARGE.

THE BONDING AND GROUNDING FOR STATIC ELECTRICITY PROTECTION SHALL BE IN COMPLIANCE PER ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES INCLUDING NFPA 30, FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, NFPA 77, RECOMMENDED PRACTICE ON STATIC ELECTRICITY, NFPA 70, NATIONAL ELECTRIC CODE, AND THE CALIFORNIA CODE OF REGULATIONS, SUBCHAPTER 15, PETROLEUM SAFETY ORDERS-REFINING, TRANSPORTATION AND HANDLING, ARTICLE 5, FIRE AND EXPLOSIONS.

PER SECTION 6.4.1.3 OF NFPA 77, THE MEASURED TOTAL RESISTANCE IN THE GROUND PATH TO EARTH SHALL BE LESS THAN 1 MEGAOHM WHICH IS CONSIDERED ADEQUATE FOR RELAXATION OF STATIC CHARGE. THE MAXIMUM ALLOWABLE GROUND PATH TO EARTH RESISTANCE FOR STATIC ELECTRICITY GROUNDING APPLICATIONS SHALL NOT EXCEED 100,000 OHMS.

PER SECTION 6.4.1.3 OF NFPA 77, THE RESISTANCE IN METALLIC BONDING AND OR GROUNDING SYSTEMS SHALL BE LESS THAN 10 OHMS. RESISTANCE HIGHER THAN 10 OHMS INDICATES INADEQUATE CONNECTIONS.

A GROUNDING SYSTEM PER NEC CODE FOR CURRENT CARRYING CONDUCTORS SHALL BE CONSIDERED MORE THAN ADEQUATE FOR A STATIC ELECTRICITY GROUNDING SYSTEM.

PER THE NFPA 30, SECTION 5-6.3.4 ALL PARTS OF THE FILL PIPE ASSEMBLY, INCLUDING THE DROP TUBE, SHALL FORM A CONTINUOUS ELECTRICALLY CONDUCTIVE PATH.

THE MINIMUM WIRE SIZE FOR BONDING AND GROUNDING SHALL BE COPPER AWG #4

A 1/2" Ø BY 10' LONG COPPER CLAD STEEL GROUND ROD SHALL BE DRIVEN INTO NATIVE SOIL ONLY. PLACING THE GROUND ROD INTO TANK PIT PEA GRAVEL SHALL NOT BE PERMITTED UNDER ANY CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR CLEARING ANY UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF THE GROUND.

THE GROUND ROD TO GROUND WIRE CONNECTION SHALL BE ACCESSIBLE THROUGH A H-20 RATED 12" DIAMETER MINIMUM ACCESS COVER TO ASSIST INSPECTION, MAINTENANCE AND TESTING. THE SCREW TYPE GROUND ROD CLAMP SHALL BE UL LISTED FOR DIRECT BURIAL.

ONE MAIN STRANDED #4 THHN CONDUCTOR SHALL BE RUN PAST EACH FILL RISER. ONE STRANDED #4 THHN CONDUCTOR SHALL BE ROUTED FROM EACH FILL AND STAGE I RISER. INSTALLATION SHALL BE AS FOLLOWS AND MUST BE COMPLETED IN ORDER NOTED AS FOLLOWS:

OUT OF HOLE INSTALLATION SEQUENCE:

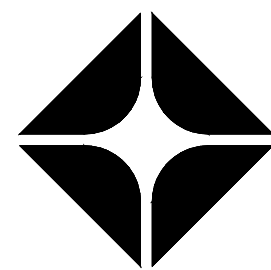
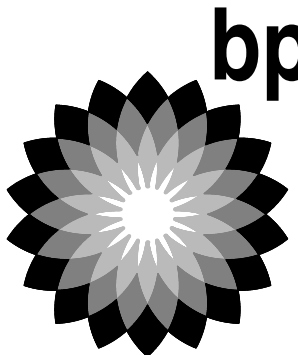
NOTE:

ALL CAD WELDS W/ EXCEPTION OF "T" CONNECTIONS AT EACH TANK AND FINAL CAD WELD @ GROUND ROD NOTED IN SCHEDULE ON THIS SHEET MAY BE PREFABRICATED OUTSIDE THE TANK AREA AND BROUGHT TO SITE.

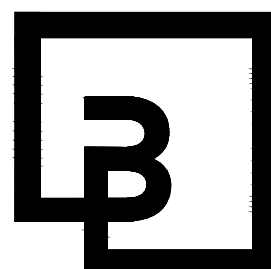
- MAKE "CABLE TO PIPING STEEL SURFACE" CADWELD CONNECTION CONNECTION WITH #4 STRANDED WIRE TO EACH FILL AND STAGE I RISER OUTSIDE THE SUMP AREA. TO ASSURE A COMPLETE CONNECTION, ANY PAINT OR COATING ON THE RISER SHALL BE REMOVED PRIOR TO INSTALLATION OF THE CADWELD CONNECTION.
- APPLY "THERMOCAP" CATHODIC PROTECTION TO EACH OF THE CADWELDS ON RISERS.
- FOR EACH TANK RISER MAKE #4 STRANDED TO #4 STRANDED "T" CADWELD CONNECTIONS TO MAIN GROUND WIRE BACK TO GROUND ROD. THE CONDUCTORS SHALL HAVE 18" MINIMUM COVER. EACH TANK SHALL HAVE SEPARATE GROUND WIRE TO GROUND ROD
- MAKE #4 STRANDED WIRE TO GROUND ROD CADWELD CONNECTION. CADWELD CONNECTION MODEL NUMBER PER NUMBER OF TANKS.

NOTE: ELECTRICAL CONDUIT, FUELING SYSTEM HARDWARE OR THE STATION ELECTRICAL GROUNDING SYSTEM SHALL NOT BE USED FOR GROUNDING OR BONDING FILL AND VAPOR RISERS.

CLIENT:



ARCO
BP WEST COAST PRODUCTS, LLC



Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1	10/04/23	PERMIT RELEASE
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SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF ALLIANCE ZADNO:

CHECKED BY: OV BP REP:

DRAWN BY: NP/RF ALLIANCE PM:

VERSION: V-15.0 PROJECT NO:

01/01/2023 21730

DRAWING TITLE:

TANK FILL AND VAPOR RISER

STATIC GROUNDING DETAIL

(STANDARD)

SHEET NO:

G.0.7.1

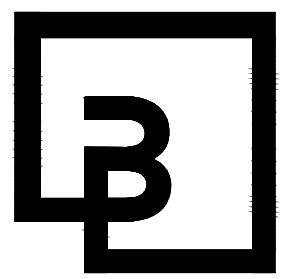

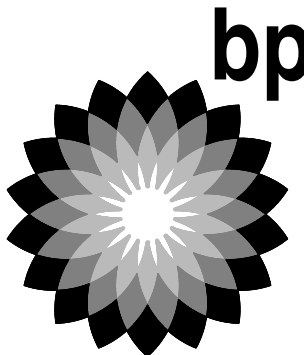
TANKS			
ITEM	BY	DESCRIPTION (BP CORE CONFIGURATIONS)	MANUFACTURER
11	BP	TANK: 12,000,10,000 GALLON, 10' DIA. NOMINAL DOUBLE WALL FIBERGLASS TANK, (w/ (2) 42" 8-SIDED TURBINE SUMPS SINGLE STP DESIGN, STEEL STRIKE PLATES AND TIE DOWN GUIDES. TANK SHALL BE UL 1316 APPROVED AND METHANOL APPROVED. (CORE DESIGN)	"CONTAINMENT SOLUTIONS" MODEL NO. DWT-6 TYPE II; (10) 12,000/10,000 GAL. w/ HYDROSTATIC RESERVOIR, w/ SINGLE WALL SUMP PKG. AS REQUIRED, w/ DEADMEN PKG. AS REQUIRED CSI-PRODUCT CODE XWDCSD303
13	BP	TANK: 25,000 GALLON, 10' DIA. NOMINAL DOUBLE WALL FIBERGLASS TANK, (w/42" 8-SIDED TURBINE SUMPS SINGLE STP DESIGN, OR 48" 8-SIDED TURBINE SUMP WITH 2 STP DESIGN w/ 22" MW), STEEL STRIKE PLATES AND TIE DOWN GUIDES. TANK SHALL BE UL 1316 APPROVED AND METHANOL APPROVED. (CORE DESIGN SIDE BY SIDE FILL)	"CONTAINMENT SOLUTIONS" MODEL NO. DWT-6 TYPE II; (10) 25,000 GALLON w/ HYDROSTATIC RESERVOIR, w/ SINGLE WALL SUMP PKG. AS REQUIRED, w/ DEADMEN PKG. AS REQUIRED CSI-PRODUCT CODE XW25SD131(42" SUMP) CSI-PRODUCT CODE XW25SD144(48" SUMP)
STAGE I EQUIPMENT - (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
19	BP	4"x4"x3"x2" EXTRACTOR CROSS FITTING W/ CAGE.	"OPW" MODEL NO. 233-4432
20	BP	4"x4"x2" EXTRACTOR TEE FITTING W/ CAGE	"OPW" MODEL NO. 233-4420
21			"OPW" MODEL NO. 723V-2203
22	BP	4" GALVANIZED RISER – LENGTH AS REQUIRED	"ANVIL" OR EQUAL
23	BP	2" PRESSURE VACUUM VENT--(GASOLINE)	"OPW" MODEL NO. 723V-2203
24	BP	DIESEL VENT CAP	"OPW" MODEL NO. 23-0033
25	G.C.	PRODUCT IDENTIFICATION MARKERS	"OPW" MODEL NO. 1TAG-1000 & 1TAG-1010 (UNLEADED) 1TAG-3000 & 1TAG-3010 (PREMIUM) 1TAG-4200 & 1TAG-4210 (ULTRA LOW DIESEL)

STAGE I EQUIPMENT - (STANDARD OPW SOLUTION)			
ITEM	BY	DESCRIPTION	MANUFACTURER
28	BP	"EDGE" DIRECT-BURY 5-GALLON REPLACEABLE DOUBLE WALL FILL SIDE SPILL BUCKET CAST IRON BASE WITH SEALABLE COVER WITH PLUG & INSTALLATION TOOL	"OPW" MODEL NO. 1C-3112P "OPW" MODEL NO. 61SA-TOOL
31	BP	FILL SWIVEL ADAPTOR – PER CARB EVR EXEC ORDER VR-102	"OPW" MODEL NO. 61SALP-1020-EVR
32	BP	PRODUCT TOP SEAL FILL CAP – PER CARB EVR EXEC ORDER VR-102	"OPW" MODEL NO. 634TT-7085-EVR
33	BP	VAPOR RECOVERY SWIVEL ADAPTOR – PER CARB EVR EXEC ORDER VR-102	"OPW" MODEL NO. 61VSA-1020-EVR
34	BP	VAPOR TOP SEAL CAP – PER CARB EVR EXEC ORDER VR-102	"OPW" MODEL NO. 1711T-7085-EVR
35	BP	4"x13' DROP TUBE W/ OVERFILL PREVENTION VALVE 4"x19.5' DROP TUBE W/ OVERFILL PREVENTION VALVE W/ JACK SCREW LOCK DOWN DEVICE W/ FACE SEAL ADAPTER (NOT NEEDED FOR "EDGE 1" SPILL BUCKETS) W/ TANK BOTTOM PROTECTOR W/ INSTALLATION TOOL – PER CARB EVR EXEC ORDER VR-102	"OPW" MODEL NO. OPW-71SQ-400C-EVR "OPW" MODEL NO. OPW-71SQ-410C-EVR "OPW" MODEL NO. 61JSK-44CB-EVR "OPW" MODEL NO. FSA-400 "OPW" MODEL NO. 6111-1400 "OPW" MODEL NO. 71SA-TOOLC
DISPENSERS			
CONTACT DRESSER WAYNE AGENT TO ENSURE THAT DISPENSERS ARE ORDERED WITH THE CORRECT PCI/TRIPLE DES POS EQUIPMENT FOR MARKET			
ITEM	BY	DESCRIPTION (BLENDEERS)	MANUFACTURER
51	BP	"OVATION" H-FRAME BLENDING MULTI-PRODUCT DISPENSER: 3-GRADE, 2-SIDED, 1 HOSE PER SIDE, w/ CARD READER. CONFIGURED AS REQUIRED FOR SITE SPECIFIC CONDITIONS AND MARKETS. FOR GASOLINE ONLY	"WAYNE" OVATION SERIES MODEL NO. B12/322XD6/K/N (3+0 GASOLINE ONLY) "X"=1 BALANCE
52	BP	"OVATION" H-FRAME BLENDING MULTI-PRODUCT DISPENSER: 4-GRADE, 2-SIDED, 2 HOSE PER SIDE, w/ CARD READER. CONFIGURED AS REQUIRED FOR SITE SPECIFIC CONDITIONS AND MARKETS. FOR GASOLINE & AUTO DIESEL	"WAYNE" OVATION SERIES MODEL NO. B23/422XD6/K/N (3+1 GASOLINE/DIESEL) "X"=1 BALANCE
EQUIPMENT SOLUTION FOR CARB LISTED ORVR "BALANCE" AREAS			
ITEM	BY	DESCRIPTION	MANUFACTURER
61	BP	G2 BLACK EVR BALANCE SYSTEM NOZZLE	"VST" MODEL # VST-EVR-NB-2
62	BP	SWIVEL (INCORPORATED INTO VST HOSE DESIGN)	
63	BP	8 FOOT ENVIRO-LOC EVR BALANCE VAPOR RECOVERY HOSE WITH VENTURI	"VST" MODEL NO. VDV-EVR-096
64	BP	BALANCE COAXIAL FUEL WHIP HOSE 12" LONG BALANCE COAXIAL FUEL WHIP HOSE 5' LONG FOR SITE USING RETRACTORS/LAZY "J" STYLE	"VST"MODEL NO. VSTA-EVR-012 "VST"MODEL NO. VSTA-EVR-060
65	BP	COAXIAL BREAKAWAY VALVE – NON REUSABLE	"VST" MODEL # VSTA-EVR-SBK
66	BP	INCLUDE SAFETY BREAKAWAY SCUFF GUARD	"VST" MODEL # VSTA-BBSG-100

EQUIPMENT SOLUTION FOR DIESEL DISPENSING (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
70	BP	DIESEL PRESSURE-SENSING AUTOMATIC PREPAY NOZZLE WITH 3/4 INCH NPT INLET 2-PIECE HAND INSULATOR ALUMINUM SPOUT AND 2-POSITION HOLD-OPEN RACK. UL 2586 LISTED. WITH NOZZLE FILLGARD SPLASH GUARD	"OPW" MODEL NO. 11B-0400-BLACK "OPW" MODEL NO. 8BL-0400-BLACK (BP/AMOCO) "OPW" MODEL NO.11B-0100-GREEN "OPW" MODEL NO. 8G-0100-GREEN (THORNTONS/ARCO)
71	BP	DIESEL 3/4 INCH MALE X 3/4 INCH FEMALE TWO PLANE SWIVEL	"OPW" MODEL NO. 241TPS-0241 (BP/AMOCO/ARCO)
72	BP	DIESEL FUEL HOSE 5/8 INCH X 8 FOOT BLACK HARDWALL HOSE 3/4 INCH MALE SWIVEL X MALE SWIVEL ENDS. UL330 AND ULC LISTED.	"SOURCE" MODEL NO. GY5/8X8MSXMS (BP/AMOCO/ARCO)
73	BP	DIESEL 5/8 INCH X 12 INCH BLACK HARDWALL WHIP HOSE 3/4 INCH MALE X MALE SWIVEL ENDS. UL330 AND ULC LISTED.	"SOURCE" MODEL NO. GY5/8X1MXMSWHIP (BP/AMOCO/ARCO)
74	BP	DIESEL 3/4 INCH RECONNECTABLE BREAKAWAY	"OPW" MODEL # 66REC-1000 (BP/AMOCO/ARCO)
75	BP	DIESEL FILTER	"CIMTEK" MODEL NO. 260-HS-10 (BP/ARCO)

NOTE: THIS MATERIALS EQUIPMENT SCHEDULE IS NOT A COMPLETE LIST OF MATERIALS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MISCELLANEOUS EQUIPMENT, FITTINGS, MATERIALS AND DEVICES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. CONTRACTOR TO COORDINATE MATERIALS DELIVERY SCHEDULE AND VERIFY EQUIPMENT COUNTS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ALL EQUIPMENT ARRIVES AT SITE IN UNDAMAGED CONDITION.

CLIENT:




Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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SEAL:



10/4/2023

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF	ALLIANCE ZADONE
CHECKED BY: OV	BP REPM:
DRAWN BY: NP/RF	ALLIANCE PM:
VERSION: V-15.0 01/01/2023	PROJECT NO: 21730

DRAWING TITLE:

TANK AND PIPING MATERIALS LIST
(1 OF 2)

SHEET NO:

M.5.1.01

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NOTE: SEE SECTION 12 ON THE TANK AND PIPING INSTALLATION SCOPE OF WORK FOR THE USE OF ALTERNATE PENETRATION FITTINGS.

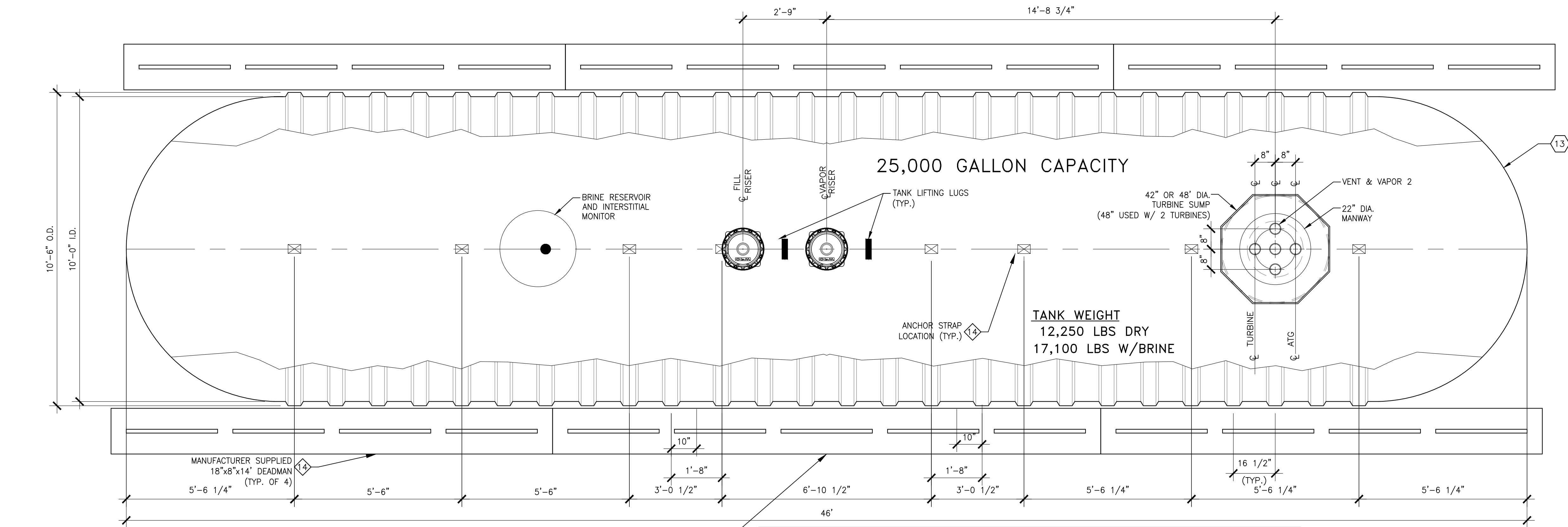
OTHER EQUIPMENT AT DISPENSERS (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡81</div>	BP	1-1/2" PRODUCT IMPACT VALVE DOUBLE POPPET W/ FUSIBLE LINK W/ U-BOLT INSTALLATION KIT	"OPW" MODEL NO. OPW-10P-0152 "OPW" MODEL NO. OPW-10P-0152EB5
<div>⬡82</div>	BP	VAPOR RECOVERY IMPACT VALVE (TOP ENTRY)	"OPW" MODEL NO. 60 VSP-1001
<div>⬡83</div>		(NOT USED)	
<div>⬡84</div>	BP	UNDER DISPENSER SPILL CONTAINMENT SUMP FOR "WAYNE OVATION" GASOLINE DISPENSERS (SINGLE WALL FRP) (CONTRACTOR TO PLUMB ALL FITTINGS) - SHEAR VALVE PLATES INCLUDED AND STABILIZER BRACKET	"BRAVO" MODEL # B9250-S36 "BRAVO" MODEL # BK-8000
<div>⬡85</div>		(NOT USED)	
<div>⬡86</div>		(NOT USED)	
<div>⬡87</div>		(NOT USED)	
<div>⬡88</div>		(NOT USED)	
<div>⬡89</div>		(NOT USED)	
<div>⬡90</div>		ISLAND FORM FOR H-FRAME DISPENSERS (NOTE ISLAND FORMS USED ONLY WHERE REQUIRED BY LOCAL JURISDICTION) 5'-0"x3'-0" (STANDARD) 7'-6"x3'-0" (FOR COLUMN WRAP) (REFER TO SPECIFIC MARKET REQUIREMENTS W/ BP PM BEFORE ORDERING)	"OPW" OR EQUAL BP ISLAND FORM
<div>⬡91</div>	BP	42"x84"x4" SCH. 40 DISPENSER ISLAND TRAFFIC BOLLARD W/SIGN MOUNTS (OR) 42"x104"x4" SCH. 40 DISPENSER ISLAND TRAFFIC BOLLARD W/SIGN MOUNTS (OR) 72"x6" STRAIGHT PIPE BOLLARD (CA ISLANDLESS SOLUTION ONLY)	"RIVERSIDE STEEL" OR EQUAL BP TRAFFIC BOLLARD
MANHOLES (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡101</div>	BP	12" DIA. ROUND MONITORING MANHOLE, WATER TIGHT AND TRAFFIC RATED WITH IDENTIFICATION TRIANGLE	"OPW" MODEL NO. 104AOW-1200 (BOLT DOWN & WATER TIGHT)
<div>⬡102</div>	BP	18" DIA. ROUND MANHOLE, BOLT DOWN, WATER TIGHT AND TRAFFIC RATED	"OPW" 104A-1800WT (BOLT DOWN & WATER TIGHT)
<div>⬡103</div>	BP	42"/45" DIA. ROUND COMPOSITE MANHOLE, WATER TIGHT GASKET, TRAFFIC RATED W/ STICK LIFT KEY PLATE & STICK LIFT ASSEMBLY (AT DUAL TURBINES ONLY)	"EBW" MODEL NO. 78144313GRY W/ SLIDE ACTION HANDLE (1 ONLY PER SITE)
<div>⬡104</div>	BP	40" COMPOSITE MANHOLEWATER TIGHT GASKET, TRAFFIC RATED W/ STICK LIFT KEY PLATE & STICK LIFT ASSEMBLY (AT TURBINES)	"FIBRELITE" 40" HEAVY DUTY FLAT SEALED COMPOSITE COVER WITH COMPOSITE FRAME MODEL # FL100GRAY-HD-SK12 W/LIFTING HANDLE MODEL # FL7A (1 ONLY PER SITE) OR "EBW" MODEL # 781-485-12GRY W/ SLIDE ACTION HANDLE (1 ONLY PER SITE)
TURBINES (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡105</div>	BP	VARIABLE SPEED SUBMERSIBLE TURBINE PUMPS -2 H.P. W/O PISTON LEAK DETECTION, W/ MAGVFC CONTROLLER PANEL, 208/230V, W/ 26" RISER, W/ "R" CHECK VALVE	GASOLINE MODELS "FE PETRO" MODEL NO. FE-IST-2R (89" TO 151") "FE PETRO" MODEL NO. FE-IST-3R (121" TO 214") DIESEL AND FLEXFUEL MODELS "FE PETRO" MODEL NO. FE-IST-AP-2R (89" TO 151") "FE PETRO" MODEL NO. FE-IST-AP-3R (121" TO 214") "FE PETRO" MODEL NO. FE-SIP-AP-75-V2-R (89" TO 151")
<div>⬡106</div>		(NOT USED)	
<div>⬡107</div>	BP	SIPHON CHECK VALVE FOR TURBINE PUMP (ALL TURBINES)	"FE PETRO" MODEL NO. 400137908
<div>⬡108</div>	BP	65 PSI CHECK VALVE (FOR SLAVE TURBINE ONLY)	"FE PETRO" MODEL NO. 402459931
<div>⬡109</div>		(NOT USED)	
MISCELLANEOUS TRANSITION SUMPS			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡111</div>		(NOT USED)	
<div>⬡112</div>	BP	VENT TRANSITION CONTAINMENT SUMP AND VENT RACK (SINGLE WALL FRP) (CONTRACTOR TO PLUMB ALL FITTINGS)	"BRAVO" MODEL NO. B501-S-222 (3 RISERS) "BRAVO" MODEL NO. B501-S-22220(4 RISERS) ORDER W/ EO-188 ELECTRICAL OFF-SET ORDER W/ RS-501 SUPPORT RACK (3 RISER) ORDER W/ RS-503 SUPPORT RACK (4 RISER)
PENETRATION FITTINGS (ALL AREAS - DESIGNER TO CONFIRM WITH BP PM FITTINGS TO BE USED)			
<div>⬡120</div>	BP	1" CONDUIT ENTRY FITTING	"BRAVO" MODEL NO. F-10S-0-F WITH EP100 ADHESIVE AS NEEDED
<div>⬡121</div>	BP	2" SINGLE WALL FRP BONDED PENETRATION FITTING (SW FRP PIPING)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL NO. 012020-622-0
<div>⬡122</div>	BP	3" SINGLE WALL FRP BONDED PENETRATION FITTING (SW FRP PIPING)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL NO. 012030-622-0
<div>⬡123</div>	BP	4" SINGLE WALL FRP BONDED PENETRATION FITTING (SW FRP PIPING ONLY WHEN REQUIRED)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL NO. 012040-622-0
<div>⬡124</div>			
<div>⬡125</div>	BP	3/4" ENTRY FITTING - STANDARD VERSION FOR GROUNDING PENETRATION	"BRAVO" MODEL NO. F-07S-0-F WITH EP100 ADHESIVE AS NEEDED
<div>⬡126</div>	BP	3" DOUBLE WALL FRP BONDED FITTING (USED FOR 3" OVER 2" DW PIPING)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL NO. 012030-626-0
<div>⬡127</div>	BP	4"x3" CONCENTRIC REDUCER (SECONDARY) (USED FOR 3" OVER 2" DW PIPING)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL NO. #012040-238-3
<div>⬡128</div>	BP	4" DOUBLE WALL FRP BONDED PENETRATION FITTING (USED FOR 4" OVER 3" DW PIPING)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL NO. 012040-626-0
<div>⬡129</div>	BP	5"x4" CENCENTRIC REDUCER (SECONDARY) (USED FOR 4" OVER 3" DW PIPING)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012050-238-3
FIBERGLASS PIPING AND FITTINGS (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡130</div>		(NOT USED)	
<div>⬡131</div>		(NOT USED)	
<div>⬡132</div>		(NOT USED)	
<div>⬡133</div>		(NOT USED)	
<div>⬡133</div>		(NOT USED)	

<div>⬡35</div>		(NOT USED)	
<div>⬡36</div>	G.C.	6" (SECONDARY) FIBERGLASS PIPE, 22'-25' LENGTH & GLUE KITS	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #011060-120-4
<div>⬡37</div>	G.C.	6" COUPLING (SECONDARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012060-101-9
<div>⬡38</div>	G.C.	6" 90 DEGREE ELBOW (SECONDARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012060-360-9
<div>⬡39</div>	G.C.	6" 45 DEGREE ELBOW (SECONDARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012060-310-9
<div>⬡40</div>	G.C.	4" BELL X MALE THREADED ADAPTER	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #002040-191-7
<div>⬡41</div>	G.C.	4" X 6" CONCENTRIC REDUCER 4" X 6" CONCENTRIC REDUCER (WITH TEST PORT)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012060-235-9 #012060-234-7
<div>⬡42</div>	G.C.	2" (PRIMARY) FIBERGLASS PIPE, 22'-25' LENGTH & GLUE KITS	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #011020-069-2
<div>⬡43</div>	G.C.	2" COUPLING (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012020-101-8
<div>⬡44</div>	G.C.	2" 90 DEGREE ELBOW (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012020-360-4
<div>⬡45</div>	G.C.	2" 45 DEGREE ELBOW (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012020-310-4
<div>⬡46</div>	G.C.	2" TEE (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #120020-410-4
<div>⬡47</div>	G.C.	2" THREADED ADAPTER BELL x MALE FRP	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012020-191-4
<div>⬡48</div>	G.C.	3" (PRIMARY) FIBERGLASS PIPE, 22'-25' LENGTH & GLUE KITS 3" (SECONDARY) FIBERGLASS PIPE, 22'-25' LENGTH & GLUE KITS	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A PRIMARY MODEL #011030-069-2 SECONDARY MODEL #011030-069-5
<div>⬡49</div>	G.C.	3" COUPLING (PRIMARY) 3" COUPLING (SECONDARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A PRIMARY MODEL #012030-101-8 SECONDARY MODEL #012030-101-9
<div>⬡50</div>	G.C.	3" 90 DEGREE ELBOW (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012030-360-4
<div>⬡51</div>	G.C.	3" 45 DEGREE ELBOW (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012030-310-4
<div>⬡52</div>	G.C.	3" TEE (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #120030-410-4
<div>⬡53</div>	G.C.	3" THREADED ADAPTER BELL x MALE FRP	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012030-191-4
<div>⬡54</div>	G.C.	3" 90 DEGREE ELBOW (SECONDARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012030-360-3
<div>⬡55</div>	G.C.	3" 45 DEGREE ELBOW (SECONDARY FLAT) 3" 45 DEGREE ELBOW (SECONDARY CROSSOVER)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A FLAT MODEL #012030-310-3 CROSSOVER MODEL #012030-311-3
<div>⬡56</div>	G.C.	3" TEE (SECONDARY FLAT) 3" TEE (SECONDARY CROSSOVER)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A FLAT MODEL #120030-410-3 CROSSOVER MODEL #120030-411-3
<div>⬡57</div>	G.C.	4" (SECONDARY) FIBERGLASS PIPE, 22'-25' LENGTH & GLUE KITS 4" (PRIMARY) FIBERGLASS PIPE, 22'-25' LENGTH & GLUE KITS	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #011040-069-5 MODEL #011040-069-2
<div>⬡58</div>	G.C.	4" COUPLING (SECONDARY) 4" COUPLING (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012040-101-3 MODEL #012040-101-4
<div>⬡59</div>	G.C.	4" 90 DEGREE ELBOW (SECONDARY) 4" 90 DEGREE ELBOW (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012040-360-3 MODEL #012040-360-4
<div>⬡60</div>	G.C.	4" 45 DEGREE ELBOW (SECONDARY FLAT) 4" 45 DEGREE ELBOW (SECONDARY CROSSOVER) 4" 45 DEGREE ELBOW (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A FLAT MODEL #012040-310-3 CROSSOVER MODEL #012040-311-3 MODEL #012040-301-4
<div>⬡61</div>	G.C.	4" TEE (SECONDARY FLAT) 4" TEE (SECONDARY CROSSOVER)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A FLAT MODEL #120040-410-3 CROSSOVER MODEL #120040-411-3
<div>⬡62</div>	G.C.	4"x3" CONCENTRIC REDUCER (SECONDARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012040-238-3
<div>⬡63</div>	G.C.	2" CAP	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A MODEL #012020-180-4
<div>⬡64</div>	G.C.	3"x2" REDUCER BUSHING (PRIMARY) 2"x1-1/2" FEMALE NPT REDUCER BUSHING (PRIMARY)	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A 3X2 MODEL #012030-231-4 2X1.5 MODEL #012020-231-4
<div>⬡65</div>	G.C.	ADDITIONAL SIMILAR FRP FITTING TYPES MAY BE REQUIRED AND SHALL BE PROVIDED BY THE CONTRACTOR.	"NOV FIBERGLASS SYSTEMS" RED THREAD 11A
MISCELLANEOUS EQUIPMENT (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡66</div>	GC	4" DIA. PIPE 7'-0" LG. MAX. WITH 4" NPT BELL X MALE ADAPTER (FOR HYDROSTATIC TANK MONITOR)	4" SINGLE WALL FRP "NOV FIBERGLASS SYSTEMS" RED THREAD 11A
<div>⬡67</div>	BP	1-1/2" BALL VALVE-FULL PORT (IF REQUIRED)	"JOMAR" MODEL NO. 100-707
<div>⬡68</div>	BP	2" BALL VALVE-FULL PORT (FOR TURBINE PRODUCT LINES) 2" STAINLESS STEEL BALL VALVE FOR E-85 FUEL, FULL PORT (FOR TURBINE PRODUCT LINES E-85 APPLICATIONS ONLY)	"JOMAR" MODEL NO. 100-708 "JOMAR" MODEL NO. 100-968
<div>⬡69</div>	BP	3" BALL VALVE-FULL PORT (FOR SIPHON LINE IF USED)	"JOMAR" MODEL NO. 100-710
<div>⬡71</div>	BP	1-1/2"x12" LONG FLEX CONNECTOR - MALE x MALE SWIVEL	"HOSE MASTER" MODEL # FSMS120150 (U.L. LISTED)
<div>⬡72</div>	BP	1-1/2"x18" LONG FLEX CONNECTOR - MALE x MALE SWIVEL	"HOSE MASTER" MODEL # FSMS180150 (U.L. LISTED)
<div>⬡73</div>	BP	2"x12" LONG FLEX CONNECTOR - 2" FEMALE x MALE SWIVEL	"HOSE MASTER" MODEL # FFSF120200 (U.L. LISTED)
<div>⬡74</div>	BP	2"x18" LONG FLEX CONNECTOR - 2" FEMALE x MALE SWIVEL	"HOSE MASTER" MODEL # FFSF180200 (U.L. LISTED)
<div>⬡75</div>	BP	2"x24" LONG FLEX CONNECTOR - 2" FEMALE x MALE SWIVEL	"HOSE MASTER" MODEL # FFSF240200 (U.L. LISTED)
<div>⬡76</div>	BP	3"x18" LONG FLEX CONNECTOR - 3" MALE x 3" UNION (AT STAGE II VAPOR)	"HOSE MASTER" MODEL # FSMU180300 (U.L. LISTED)
<div>⬡77</div>		(NOT USED)	
<div>⬡78</div>	BP	6" LOCKING TEST WELL PLUG	"EBW" MODEL NO. 772-109-01
<div>⬡79</div>	BP	6" FACTORY SLOTTED PVC-1 PIPE, 0.02 SLOTS OR AS REQUIRED FOR LOCAL REGULATIONS W/ CAPPED BOTTOM (LENGTH AS REQUIRED)	"ATLANTIC SCREEN" OR EQUAL
<div>⬡80</div>	G.C.	6" PVC COUPLER. PRESS FIT WITH NO SOLVENT GLUES	BY G.C.
<div>⬡81</div>	G.C.	6" SCH 40 SOLID PVC PIPING	BY G.C.
<div>⬡82</div>	G.C.	4" NPT x 3" NPT DOUBLE TAP BUSHING-PLATED CAST IRON (SIPHON STINGERS)	"OPW" MODEL NO. 53-0038
<div>⬡83</div>	G.C.	1-1/2" OR 2" OR 3" GALVANIZED STEEL PIPE	"ANVIL" OR EQUAL
<div>⬡84</div>	G.C.	1-1/2" OR 2" OR 3" 90° OR 45° GALVANIZED STEEL ELBOW	"ANVIL" OR EQUAL
<div>⬡85</div>	G.C.	1-1/2" OR 2" OR 3" GALVANIZED STEEL PIPE TEE	"ANVIL" OR EQUAL

<div>⬡86</div>	G.C.	1-1/2" OR 2" OR 3" GALVANIZED STEEL PIPE UNION	"ANVIL" OR EQUAL
<div>⬡87</div>	G.C.	1" RIGID CONDUIT	BY G.C.
<div>⬡88</div>	G.C.	J-BOX "NEMA" 3R 4X4 OR 16" SQ.	"CROUSE HINDS" GUP215
<div>⬡89</div>	G.C.	J-BOX EXP. PROOF	"CROUSE HINDS" 1" GUA SERIES
<div>⬡90</div>	G.C.	(NOT USED)	
<div>⬡91</div>	G.C.	SEAL OFF W/ DRAIN	"CROUSE HINDS" 1" EYS3 (VERTICAL) OR EYS31 (VERTICAL OR HORIZONTAL) W/ ECD15 UNIVERSAL DRAIN
<div>⬡92</div>	G.C.	SEAL OFF	"CROUSE HINDS" 1" EYS3 (VERTICAL) OR EYS31 (VERTICAL OR HORIZONTAL)
VEEDER ROOT EQUIPMENT (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡200</div>	BP	TLS-450 PLUS ENVIRONMENTAL & INVENTORY MANAGEMENT SYSTEM WITH INTEGRAL PRINTER (W/ ALL REQUIRED SENSOR MODULES REQUIREMENTS, DIM MODULE, RS232 PORT, V-27 SOFTWARE)	"VEEDER-ROOT" MODEL NO. 860091-302
<div>⬡201</div>	BP	MAG SUMP LIQUID SENSOR, 12" MODEL, DISCRIMINATING, POSITION SENSITIVE (FOR ALL CORE AND NYC EAST OF ROCKIES - ALL SUMPS)	"VEEDER-ROOT" MODEL NO. 857080-111
<div>⬡202</div>	BP	SUMP LIQUID SENSOR, POSITION SENSITIVE (FOR ALL CORE AND CA LOCATIONS WEST OF ROCKIES - ALL SUMPS)	"VEEDER-ROOT" MODEL NO. 794380-208 (PREFERRED) "VEEDER-ROOT" MODEL NO. 794380-323
<div>⬡203</div>	BP	HYDROSTATIC SENSOR-DUAL FLOAT (ALL LOCATIONS) (INCLUDES 4" RISER PIPE CAP MODEL 329992-002)	"VEEDER-ROOT" MODEL NO. 794380-303
<div>⬡204</div>	BP	TANK LEVEL 8" MAGNETOSTRICTIVE PROBE-0.1 GPH (USE 4" FLOAT IN KIT) TANK LEVEL 10" MAGNETOSTRICTIVE PROBE-0.1 GPH (USE 4" FLOAT IN KIT) TANK LEVEL 11" MAGNETOSTRICTIVE PROBE-0.1 GPH (USE WITH 10" W/ MANWAY) (ALCOHOL COMPATIBLE)	"VEEDER-ROOT" MODEL NO. VR-846397-107 "VEEDER-ROOT" MODEL NO. VR-846397-109 "VEEDER-ROOT" MODEL NO. VR-846397-111 "VEEDER-ROOT" MODEL NO. VR-846397-407 "VEEDER-ROOT" MODEL NO. VR-846397-409 "VEEDER-ROOT" MODEL NO. VR-846397-410
<div>⬡205</div>	BP	2" FLOAT PROBE KIT (GASOLINE) (ONLY WHEN ATG BUNG NOT ON CENTER OF TANK) 4" FLOAT PROBE KIT W/ WATER/PHASE DETECTION FOR TANK LEVEL PROBE (GASOLINE)	"VEEDER-ROOT" MODEL NO. VR-846400-100 "VEEDER-ROOT" MODEL NO. VR-886100-010
<div>⬡206</div>	BP	2" FLOAT PROBE KIT (DIESEL) (ONLY WHEN ATG BUNG NOT ON CENTER OF TANK) 4" FLOAT PROBE INSTALL KIT FOR TANK LEVEL PROBE (DIESEL)	"VEEDER-ROOT" MODEL NO. VR-846400-111 "VEEDER-ROOT" MODEL NO. VR-846400-011
<div>⬡207</div>	BP	4" FLOAT PROBE INSTALL KIT FOR TANK LEVEL PROBE (ALCOHOL COMPATIBLE)	"VEEDER-ROOT" MODEL NO. VR-846400-004
<div>⬡208</div>	BP	TANK GAUGE PORT CAP AND RING KIT PER CARB EVR EXEC ORDER VR-101 & VR-102	"VEEDER-ROOT" MODEL NO. VR-312020-952
<div>⬡209</div>	BP	DIGITAL 3 GPH PRESSURE LINE LEAK DETECTION AT TURBINES	"VEEDER-ROOT" MODEL NO. 859080-001
<div>⬡209</div>	BP	OVERFILL ALARM WITH HORN/STROBE 120VAC	"VEEDER-ROOT" MODEL NO. 790091-001
<div>⬡210</div>	BP	ACKNOWLEDGEMENT SWITCH	"VEEDER-ROOT" MODEL NO. 790095-001
<div>⬡211</div>	BP	MANIFOLD SIPHON BREAK VALVE KIT	"VEEDER-ROOT" MODEL NO. 330020-031
<div>⬡212</div>			
<div>⬡213</div>			
<div>⬡214</div>		(NOT USED)	
<div>⬡215</div>		(NOT USED)	
<div>⬡216</div>		(NOT USED)	
<div>⬡217</div>		(NOT USED)	
MATERIAL LIST AT BUILDING (ALL AREAS)			
ITEM	BY	DESCRIPTION	MANUFACTURER
<div>⬡220</div>	BP	ELECTRICAL POWER AND CONTROL CABINET "EPC" PREFABRICATED WITH ALL ELECTRICAL PANELS, BREAKERS, TURBINE CONTROLLERS, ISOLATION RELAYS, DISPENSER LOW VOLTAGE DISCONNECT (DATA/CRIND/INTERCOM/ETHERNET) AND FIELD WIRING TERMINAL BLOCKS. SITE SPECIFIC CONFIGURATION PROVIDED AND U.L. LISTED FOR THIS APPLICATION.	"PER BP REQUIREMENTS" (SUPPLIED DIRECTLY TO SITE)
<div>⬡221</div>	BP	POWER CONDITIONER	"ONEAC" MODEL NO. CB1115 OR EQUAL W/ HARD WIRE PART #011-002
<div>⬡223</div>	BP	VERIFONE SITE COMMANDER SITE CONTROLLER	"VERIFONE" COMMANDER SITE CONTROLLER
<div>⬡224</div>	BP	TOKHEIM INTERCONNECT/ISOLATION MODULE FOR PIC UNITS (ARCO BRANDED SITES ONLY)	"TOKHEIM" SAM PIC INTERFACE UNIT (SUPPLIED DIRECTLY FROM TOKHEIM)
<div>⬡225</div>	BP	TOKHEIM SAM CONTROLLER BOX FOR PIC UNITS (ARCO BRANDED SITES ONLY)	"TOKHEIM" SAM CONTROLLER BOX (SUPPLIED DIRECTLY FROM TOKHEIM)
<div>⬡228</div>	BP	POS MODULE (POINT OF SALE)	POS SYSTEM BP CONFIGURATION (SOFTWARE SUPPLIED DIRECTLY FROM MANUFACTURER)
<div>⬡229</div>	BP	INTERCOM TO DISPENSERS (CONSOLE MOUNTED AT SALES COUNTER)	"3M" INTERCOM MASTER MODEL # 3M-D-120 (12 CHANNEL) DISPENSER MOUNTED SPEAKERS BY DISP. MANF.
<div>⬡230</div>	BP	EMERGENCY PUMP SHUT OFF SWITCH (INDOOR/OUTDOOR)	"SQUARE D" CLASS 9001 KR3RH6 PUSH-BUTTON N.C. WITH BOX AND COVER. (FOR OUTDOOR NEMA 3R ENCLOSURE REQUIRED) (OR EQUAL)
<div>⬡231</div>	BP	EMERGENCY PUMP SHUT OFF RESET SWITCH (INDOOR AT SALES COUNTER)	"SQUARE D" CLASS 9001 KR3RH5 PUSH-BUTTON N.C. WITH BOX AND COVER. (FOR OUTDOOR NEMA 3R ENCLOSURE REQUIRED) (OR EQUAL)
<div>⬡232</div>	G.C.	MAINTENANCE RECEPTACLE	"HUBBELL" SPECIFICATION GRADE RECEPTACLE GFCI IN WEATHERPROOF COVER

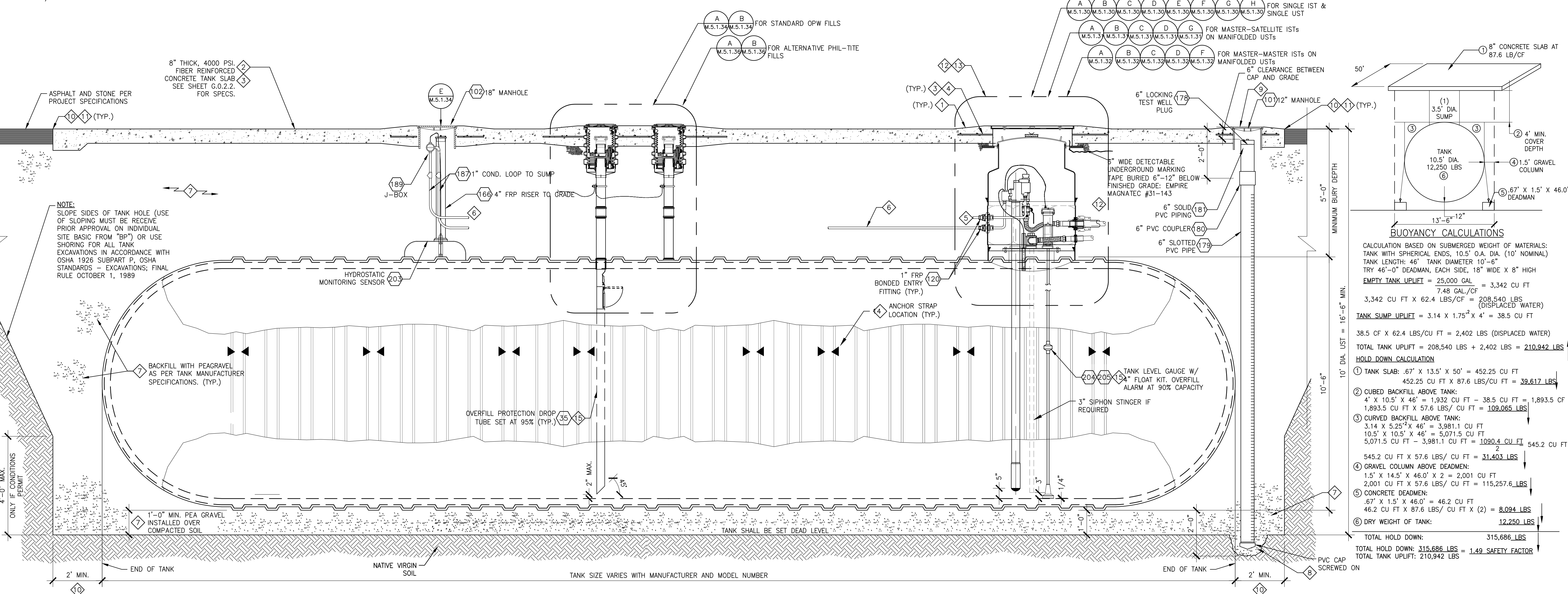
NOTE: THIS MATERIALS EQUIPMENT SCHEDULE IS NOT A COMPLETE LIST OF MATERIALS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MISCELLANEOUS EQUIPMENT, FITTINGS, MATERIALS AND DEVICES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. CONTRACTOR TO COORDINATE MATERIALS DELIVERY SCHEDULE AND VERIFY EQUIPMENT COUNTS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ALL EQUIPMENT ARRIVES AT SITE IN UNDAMAGED CONDITION.

CLIENT:



UNDERGROUND TANK PLAN VIEW

SCALE: 1/2" = 1'-0"



A: UNDERGROUND TANK SECTION DETAIL

SCALE: 1/2" = 1'-0"

NOTE: INDICATES ITEMS FOUND ON MATERIALS LIST SHEETS M.5.1.01 & M.5.1.02

NOTES: UST INSTALLATION	
1	SLOPE CONCRETE AWAY FROM ALL MANHOLES 1" RISE OVER 12" RUN.
2	FIBER REINFORCEMENT TO BE USED. PREMIX UNIFORMLY THROUGHOUT CONCRETE.
3	REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
4	REINFORCE CONCRETE SLAB AROUND MANHOLE WITH (4) #4 REBAR 60" IN LENGTH. PLACE REBAR 6" FROM SIDES OF BOX.
5	SINGLE 1" CONDUIT TO EACH SUBMERSIBLE PUMP. PROVIDE SEAL-OFF AT SUMP & BUILDING WIRING THROUGH TANKS. LINE VOLTAGE WIRING. ALL CONDUIT PENETRATIONS MUST BE MADE WITH ROBOROY PVC COATED CONDUIT ONLY.
6	SINGLE 1" CONDUIT TO EACH TANK. LOOP HOME RUN FROM INTERSTITIAL SENSOR LOCATION TO CONTAINMENT SUMP SENSORS & TANK GAUGES. PROVIDE SEAL-OFF IN BUILDING & AT TANK. ROUTE TO INTRINSICALLY SAFE TROUGH IN BUILDING. CONTAINS ONLY LOW VOLTAGE WIRING FOR SENSORS. ALL CONDUIT PENETRATIONS MUST BE MADE WITH ROBOROY PVC COATED CONDUIT ONLY.
7	USE PEA GRAVEL CONSISTING OF NATURALLY ROUNDED AGGREGATE, MIN 1/2" & MAX OF 1/2" IN SIZE, FREE OF CLAY, SLAG, CINDERS, OR DEBRIS. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER'S & OWNER'S FIELD REPRESENTATIVE.
8	6" OBSERVATION SUMP DEPTH SHALL BE 24" BELOW TANK. DO NOT PENETRATE SOIL. DO NOT USE PVC CEMENT ON BOTTOM CAP OR OTHER COUPLINGS OR FITTINGS.
9	TANK EXCAVATION OBSERVATION SUMP (2). INSTALLED WITH TANKS, DO NOT DRILL AFTER INSTALLATION.
10	TANK PAD MINIMUM 2'-0" OFF OUTSIDE WALLS OF TANKS, AND MUST COVER THE FOOTPRINT OF THE TANKS, REQUIRED TO PROVIDE FOR PROPER TANK HOLD DOWN, AND TO PREVENT ACCIDENTAL DRILLING INTO TANK.
11	CUT CORNER WHERE MEETING ASPHALT PAVING ONLY. SQUARE CORNERS WHERE MEETING CONCRETE.
12	REFER TO SITE SPECIFIC PLANS FOR ACTUAL PIPE RUNS & NUMBER OF PRODUCT LINES (1 OR 2 PER UST SUMP).
13	TURBINE SUMP CONFIGURATION SHOWN IS TYPICAL. FOR SPECIFIC DESIGN CRITERIA AT THESE SUMPS SEE ACCOMPANYING TANK INSTALLATION SITE PLAN & SUMP DETAIL DRAWINGS NOTED ABOVE.
14	TANK ANCHORING. CONSULT LOCAL REGULATION; VERIFY WITH OWNER'S REPRESENTATIVE.
15	OVERFLOW PROTECTION: UST OVERFLOW COMPLIANCE IS ACHIEVED BY USE OF OVERFLOW PREVENTION DROP TUBE FLAPPER VALVE SET AT 95% AND IN ACCORDANCE WITH FEDERAL AND STATE GUIDELINES FOR UST OVERFILL REQUIREMENTS. AN OVERFILL ALARM AND ACKNOWLEDGE SWITCH TIED INTO THE VEEDER ROOT AUTOMATIC TANK GAUGE SYSTEM. THE MONITORING SYSTEM PROVIDES AN AUDIBLE AND VISUAL ALARM WHEN THE TANK(S) ARE FILLED TO THE 90% LEVEL.

NO.	DATE	REVISION DESCRIPTION
1	10/04/23	PERMIT RELEASE
2		
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SEAL:

10/04/2023

BUOYANCY CALCULATIONS

CALCULATION BASED ON SUBMERGED WEIGHT OF MATERIALS:
TANK WITH SPHERICAL ENDS, 10.5' O.A. DIA. (10' NOMINAL)
TANK LENGTH: 46' TANK DIAMETER 10'-2"
TRY 46'-0" DEADMAN, EACH SIDE, 18" WIDE X 8" HIGH

EMPTY TANK UPLIFT = 25,000 GAL
7.48 GAL/CF = 3,342 CU FT
3,342 CU FT X 62.4 LBS/CF = 208,540 LBS (DISPLACED WATER)

TANK SUMP UPLIFT = 3.14 X 1.75² X 4' = 38.5 CU FT
38.5 CF X 62.4 LBS/CF = 2,402 LBS (DISPLACED WATER)

TOTAL TANK UPLIFT = 208,540 LBS + 2,402 LBS = 210,942 LBS

HOLD DOWN CALCULATION

1 TANK SLAB: .67' X 13.5' X 50' = 452.25 CU FT
452.25 CU FT X 87.6 LBS/CF = 39,617 LBS

2 CUBED BACKFILL ABOVE TANK:
4' X 10.5' X 46' = 1,932 CU FT - 38.5 CU FT = 1,893.5 CF
1,893.5 CU FT X 57.6 LBS/CF = 109,065 LBS

3 CURVED BACKFILL ABOVE TANK:
3.14 X 5.25² X 46' = 3,981.1 CU FT
10.5' X 10.5' X 46' = 5,071.5 CU FT
5,071.5 CU FT - 3,981.1 CU FT = 1,090.4 CU FT
1,090.4 CU FT X 54.5 LBS/CF = 59,422 LBS

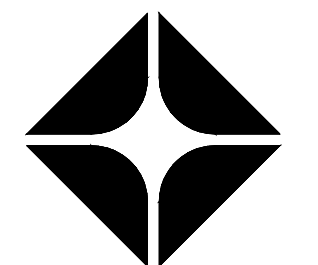
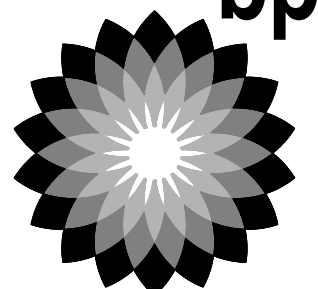
4 GRAVEL COLUMN ABOVE DEADMAN:
1.5' X 14.5' X 46.0' X 2 = 2,001 CU FT
2,001 CU FT X 57.6 LBS/CF = 115,257.6 LBS

5 CONCRETE DEADMAN:
46.2 CU FT X 87.6 LBS/CF = 4,049 LBS

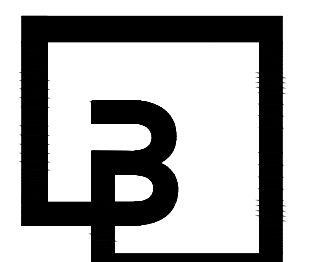
6 DRY WEIGHT OF TANK: 12,250 LBS

TOTAL HOLD DOWN: 315,686 LBS
TOTAL TANK UPLIFT: 210,942 LBS
SAFETY FACTOR = 1.49

CLIENT: bp



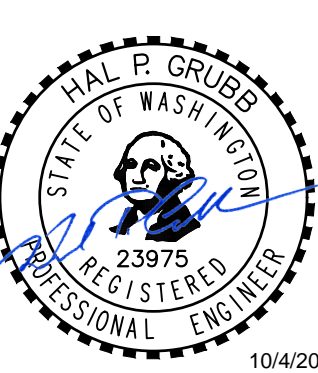
BP WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1	10/04/23	PERMIT RELEASE
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12		

SEAL:



DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF ALLIANCE ZONE:
CHECKED BY: OV BP REP:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730

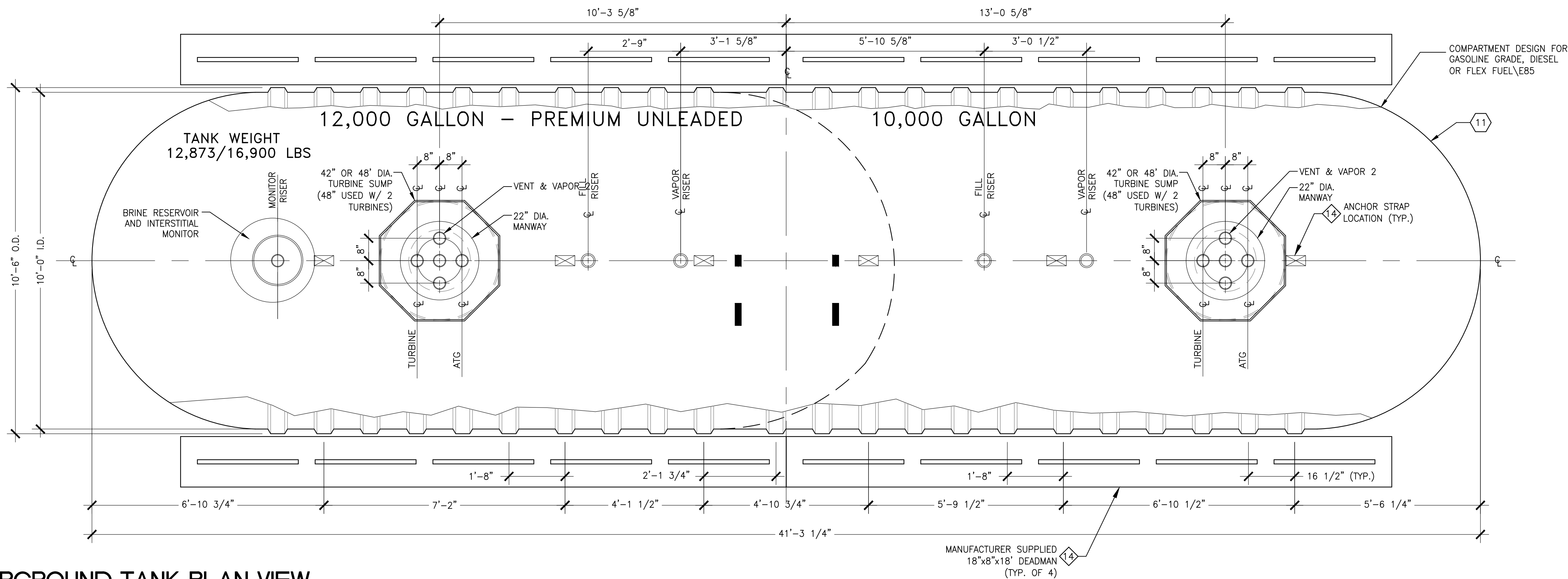
DRAWING TITLE:
TYPICAL 10' DIA. 25,000 GALLON
DOUBLE WALL FIBERGLASS
TANK INSTALLATION DETAILS
(MID FILL)

SHEET NO:

M.5.1.04

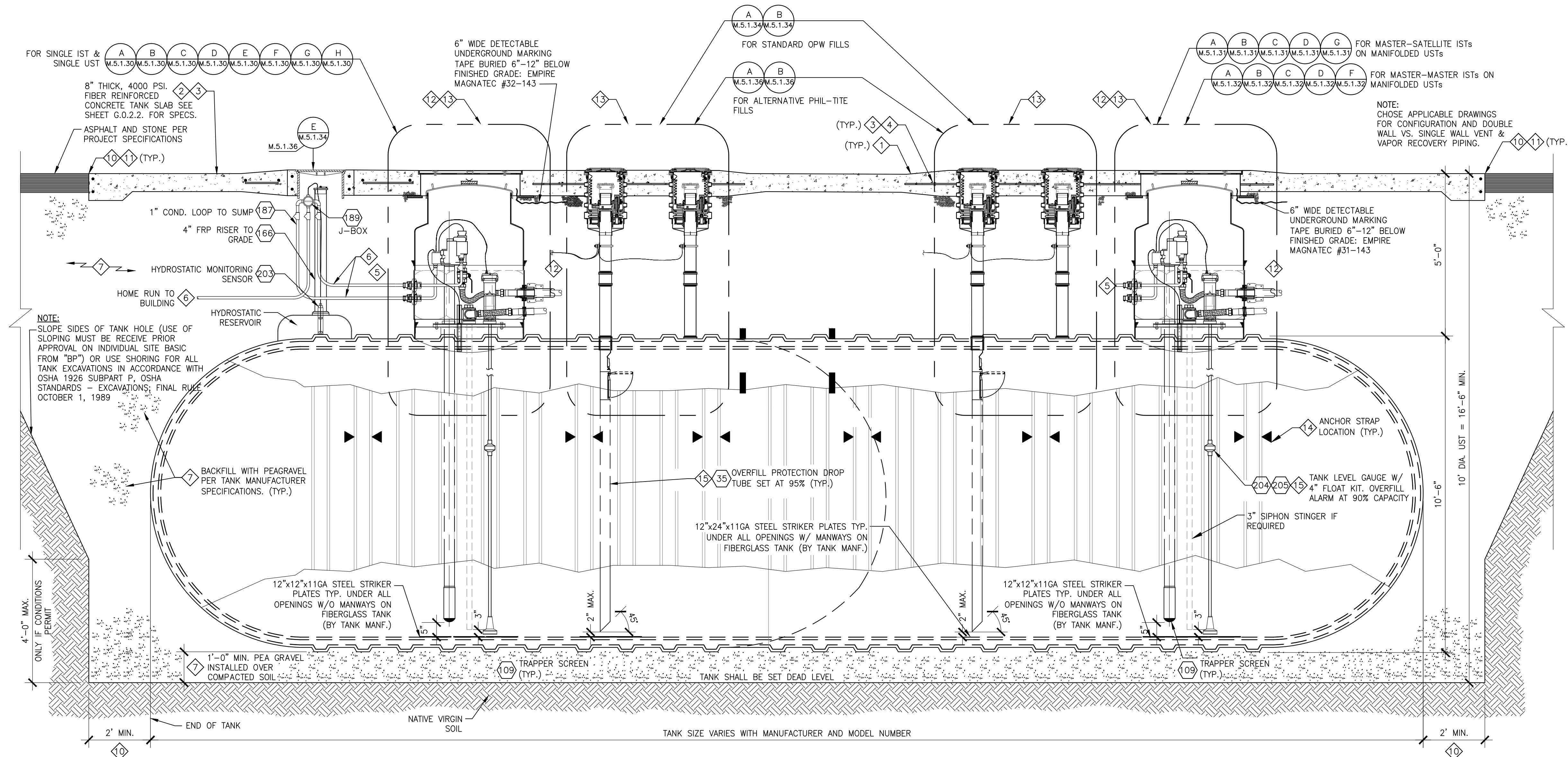
BUOYANCY CALC. 25,000 GAL. TANK

SCALE: NTS (TYPICAL CALCULATION ASSUMING 4' MINIMUM OVER OF GRAVEL)



UNDERGROUND TANK PLAN VIEW

SCALE: 1/2" = 1'-0"



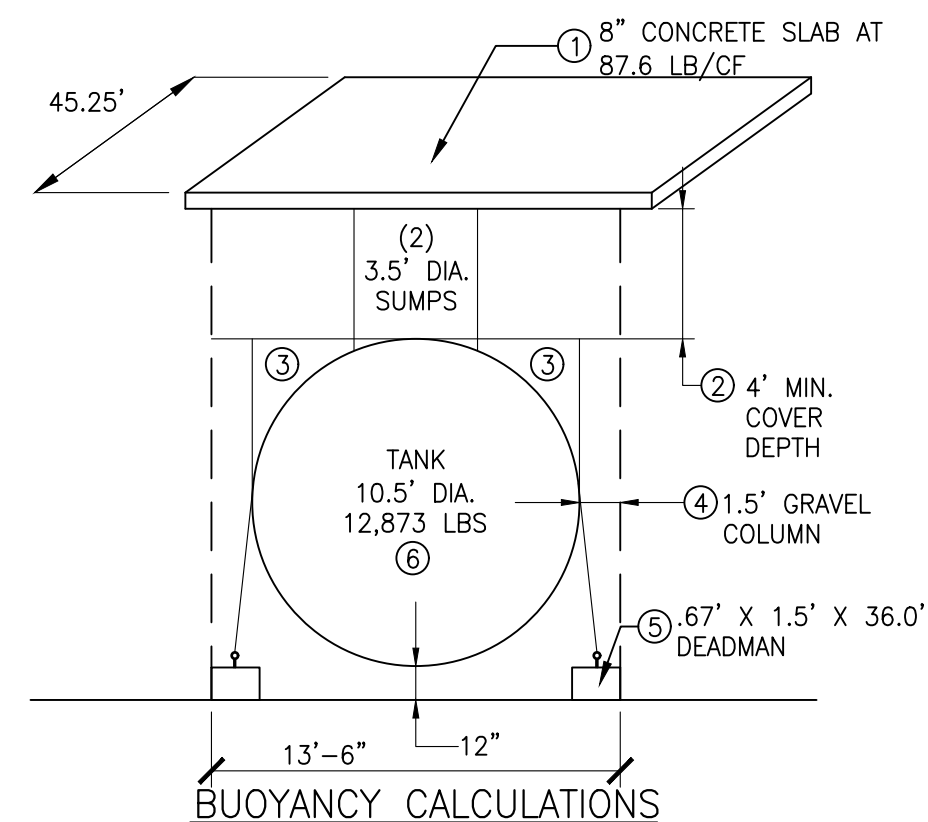
A: UNDERGROUND TANK SECTION DETAIL

SCALE: 1/2" = 1'-0"



NOTE:
INDICATES ITEMS FOUND ON MATERIALS LIST SHEETS M.5.1.01 & M.5.1.02

NOTES: UST INSTALLATION
1 SLOPE CONCRETE AWAY FROM ALL MANHOLES 1" RISE OVER 12" RUN.
2 FIBER REINFORCEMENT TO BE USED. PREMIX UNIFORMLY THROUGHOUT CONCRETE.
3 REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
4 REINFORCE CONCRETE SLAB AROUND MANHOLE WITH (4) #4 REBAR 60" IN LENGTH. PLACE REBAR 6" FROM SIDES OF BOX.
5 SINGLE 1" CONDUIT TO EACH SUBMERSIBLE PUMP. PROVIDE SEAL-OFF AT SUMP & BUILDING WIRING TROUGH. CONTAINS LINE VOLTAGE WIRING. ALL CONDUIT PENETRATIONS MUST BE MADE WITH ROBROY PVC COATED CONDUIT ONLY.
6 SINGLE 1" CONDUIT TO EACH TANK. LOOP HOME RUN FROM INTERSTITIAL SENSOR LOCATION TO CONTAINMENT SUMP SENSORS & TANK GAUGES. PROVIDE SEAL-OFF IN BUILDING & AT TANK. ROUTE TO INTRINSICALLY SAFE TROUGH IN BUILDING. CONTAINS ONLY LOW VOLTAGE WIRING FOR SENSORS. ALL CONDUIT PENETRATIONS MUST BE MADE WITH ROBROY PVC COATED CONDUIT ONLY.
7 USE PEA GRAVEL CONSISTING OF NATURALLY ROUNDED AGGREGATE, MIN 1/2" & MAX OF 1/2" IN SIZE, FREE OF CLAY, SLAG, CINDERS, OR DEBRIS. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER'S & OWNER'S FIELD REPRESENTATIVE.
8 NOT USED
9 NOT USED
10 TANK PAD MINIMUM 2'-0" OFF OUTSIDE WALLS OF TANKS, AND MUST COVER THE FOOTPRINT OF THE TANKS. REQUIRED TO PROVIDE FOR PROPER TANK HOLD DOWN, AND TO PREVENT ACCIDENTAL DRILLING INTO TANK.
11 CUT CORNER WHERE MEETING ASPHALT PAVING ONLY. SQUARE CORNERS WHERE MEETING CONCRETE.
12 REFER TO SITE SPECIFIC PLANS FOR ACTUAL PIPE RUNS & NUMBER OF PRODUCT LINES (1 OR 2 PER UST SUMP).
13 TURBINE SUMP CONFIGURATION SHOWN IS TYPICAL FOR SPECIFIC DESIGN CRITERIA AT THESE SUMPS SEE ACCOMPANYING TANK INSTALLATION SITE PLAN & SUMP DETAIL DRAWINGS NOTED ABOVE.
14 TANK ANCHORING. CONSULT LOCAL REGULATION; VERIFY WITH OWNER'S REPRESENTATIVE.
15 OVERFLOW PROTECTION: UST OVERFLOW COMPLIANCE IS ACHIEVED BY USE OF OVERFLOW PREVENTION DROP TUBE FLAPPER VALVE SET AT 95% AND IS IN ACCORDANCE WITH FEDERAL AND STATE GUIDELINES FOR UST OVERFLOW REQUIREMENTS. AN OVERFILL ALARM AND ACKNOWLEDGE SWITCH TIED INTO THE VEEDER ROOT AUTOMATIC TANK GAUGE SYSTEM. THE MONITORING SYSTEM PROVIDES AN AUDIBLE AND VISUAL ALARM WHEN THE TANK(S) ARE FILLED TO THE 90% LEVEL.

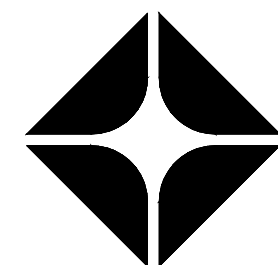
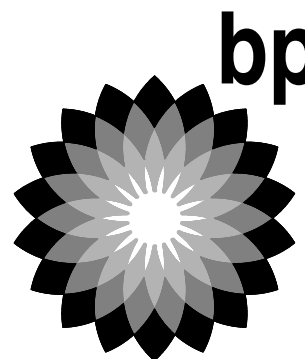


CALCULATION BASED ON SUBMERGED WEIGHT OF ALL MATERIALS: TANK WITH SPHERICAL ENDS, 10.5' O.A. DIA. (10' NOMINAL) TANK LENGTH: 41' 3-1/4" TANK DIAMETER 10'-6" TRY 36'-0" DEADMAN, EACH SIDE, 18" WIDE X 8" HIGH EMPTY TANK UPLIFT = 22,000 GAL 7.48 GAL/CF = 2941 CU FT 2941 CU FT X 62.4 LBS/CF = 183,518 LBS (DISPLACED WATER) TANK SUMP UPLIFT = (2) X 3.14 X 1.75 ² X 4' = 76.9 CU FT 76.9 CF X 62.4 LBS/CF = 4,798 LBS (DISPLACED WATER) TOTAL TANK UPLIFT = 183,518 LBS + 4,804 LBS = 188,322 LBS <u>HOLD DOWN CALCULATION</u> 1 TANK SLAB: 67' X 13.5' X 45.25' = 409.2 CU FT 409.2 CU FT X 87.6 LBS/CF = 35,846 LBS ↓ 2 CUBED BACKFILL ABOVE TANK: 4' X 10.5' X 41.25' = 1,732.5 CU FT - 76.9 CU FT = 1655 CF 1655 CU FT X 57.6 LBS/CF = 95,328 LBS ↓ 3 CURVED BACKFILL ABOVE TANK: 3.14 X 5.25 ² X 41.25' = 3,570.0 CU FT 10.5' X 10.5' X 41.25' = 4,547.8 CU FT 4,547.8 CU FT - 3,570.0 CU FT = 977.8 CU FT = 488.90 CU FT 488.9 CU FT X 57.6 LBS/CF = 28,161 LBS ↓ 4 GRAVEL COLUMN ABOVE DEADMAN: 1.5' X 14.5' X 36.0' X 2 = 1,566 CU FT 1,566 CU FT X 57.6 LBS/CF = 90,202 LBS ↓ 5 CONCRETE DEADMAN: .67' X 1.5' X 36.0' = 36.2 CU FT 36.2 FT X 87.6 LBS/CF X (2) = 6,342 LBS ↓ 6 DRY WEIGHT OF TANK: 12,873 LBS TOTAL HOLD DOWN: 268,752 LBS ↓ TOTAL HOLD DOWN: 268,752 LBS = 1.42 SAFETY FACTOR TOTAL TANK UPLIFT: 188,322 LBS	
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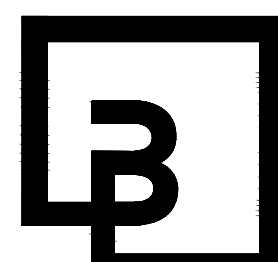
BUOYANCY CALC. 22,000 GAL. SPLIT TANK

SCALE: NTS (TYPICAL CALCULATION ASSUMING 4' MINIMUM OVER OF GRAVEL)

CLIENT:



BP WEST COAST PRODUCTS, LLC

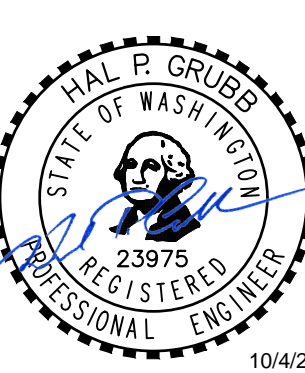


Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1	10/04/23	PERMIT RELEASE
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12		

SEAL:



DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF ALLIANCE ZADNE:

CHECKED BY: OV BP REPM:

DRAWN BY: NP/RF ALLIANCE PM:

VERSION: V-15.0 PROJECT NO:

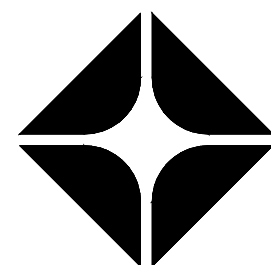
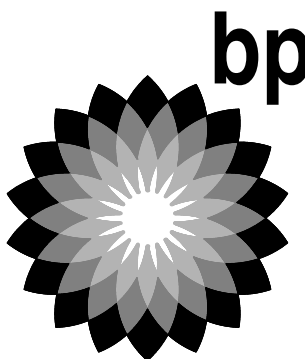
01/01/2023 21730

DRAWING TITLE:

TYP. 10' DIA. 12,000/10,000 GALLON
DOUBLE WALL FIBERGLASS
TANK INSTALLATION DETAILS

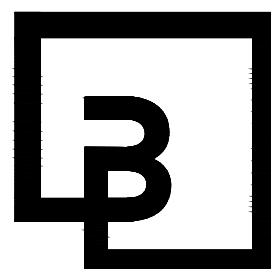
SHEET NO:

M.5.1.15



ARCO

BP WEST COAST PRODUCTS, LLC

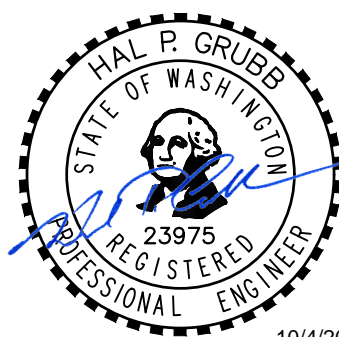


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SEA:



10/4/2023

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: **ND/DE** ALLIANCE 7&DM:

DESIGNED BY: NP/RF	ALLIANCE Z&DM:
CHECKED BY: OV	BP REPM:

DRAWN BY:	NR/DE	ALLIANCE PM:
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VERSION: V15.0	PROJECT NO:
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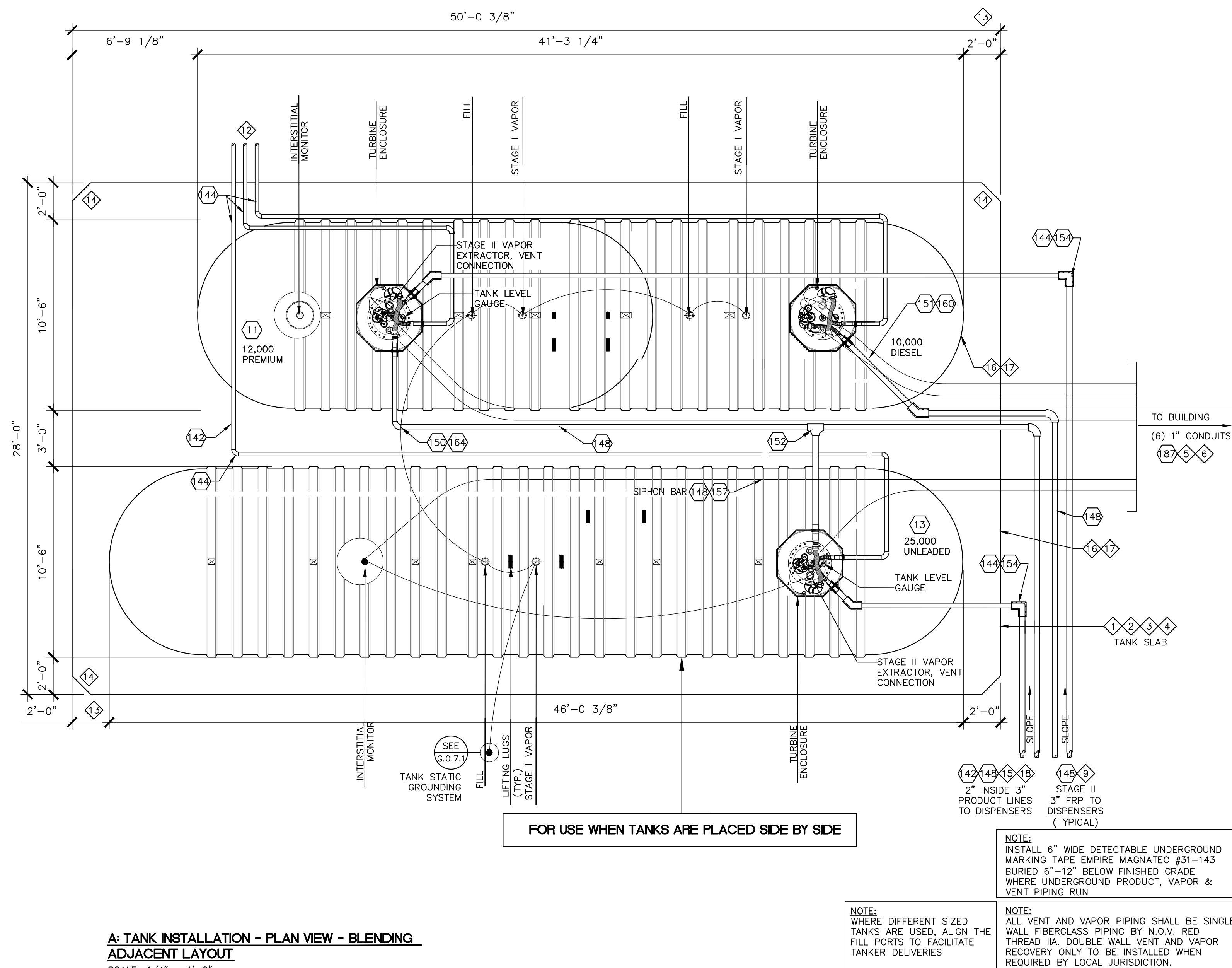
VERSION: V-15.0 01/01/2023	PROJECT NO: 2173
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DRAWING TITLE:

UST INSTALLATION
(2) 10' DIA. 25K/22K BLENDING

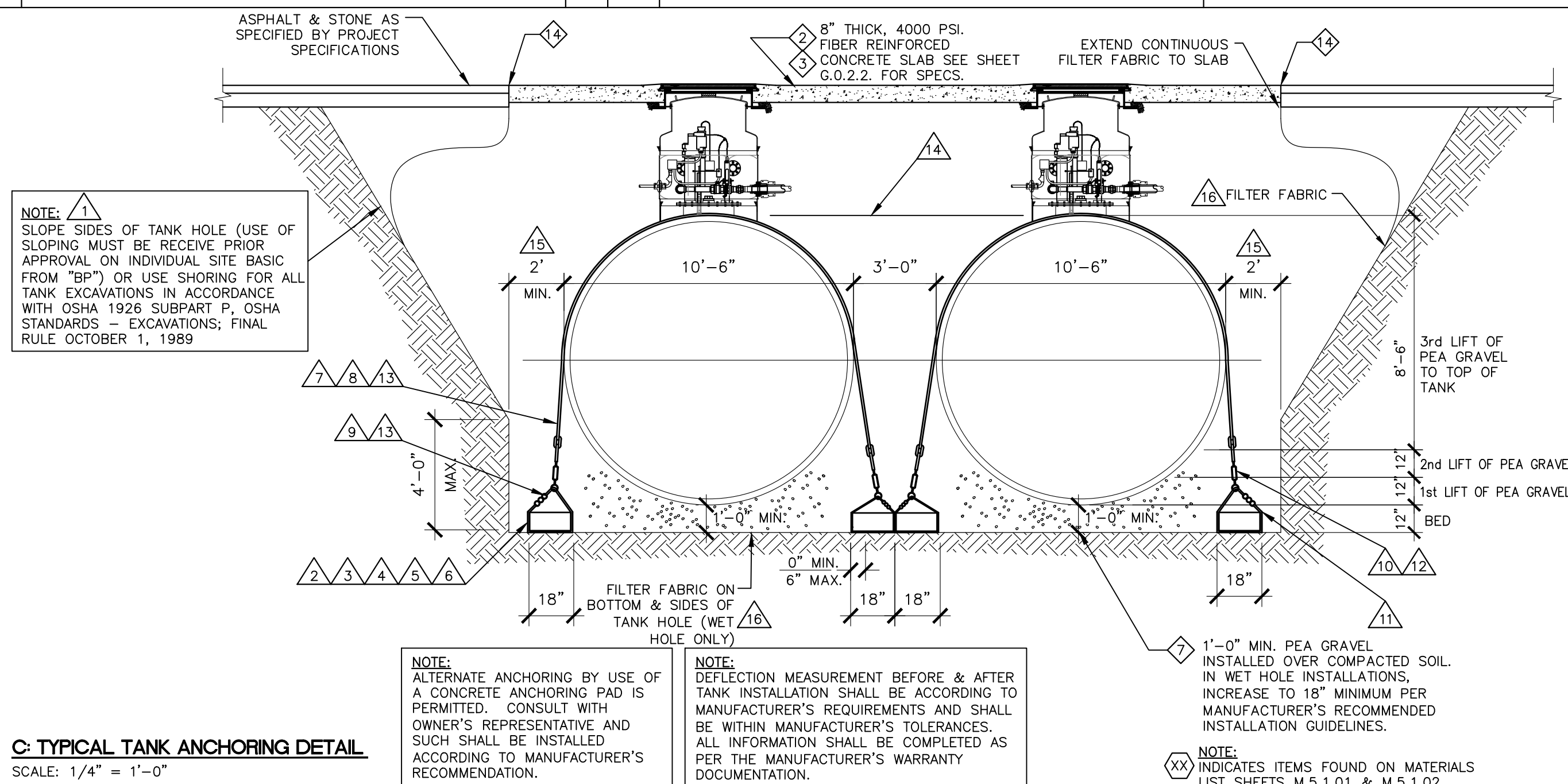
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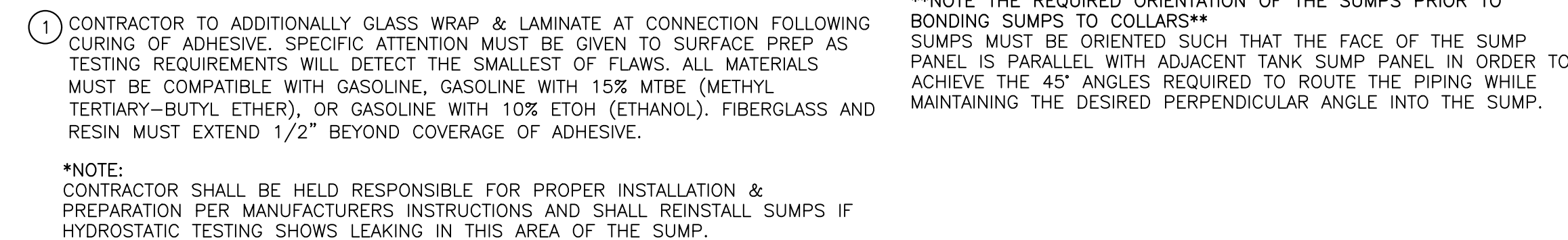
M.5.1.28



NOTES: UST INSTALLATION

- | | | | |
|---|---|----|--|
| 1 | SLOPE CONCRETE AWAY FROM ALL MANHOLES 1" RISE OVER 12" RUN. | 10 | NOT USED. |
| 2 | FIBER REINFORCEMENT TO BE USED. PREMIX UNIFORMLY THROUGHOUT CONCRETE. | 11 | TANK EXCAVATION OBSERVATION SUMP (2). INSTALLED WITH TANKS, DO NOT DRILL AFTER INSTALLATION. |
| 3 | REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE. | 12 | TO ABOVE GROUND VENT RISERS, SEE DETAIL ON SHEET G.0.6.1. |
| 4 | REINFORCE CONCRETE SLAB AROUND MANHOLE WITH (4) #4 REBAR 60" IN LENGTH. PLACE REBAR 6" FROM SIDES OF BOX. | 13 | TANK PAD MINIMUM 2'-0" OFF OUTSIDE WALLS OF TANKS, AND MUST COVER THE FOOTPRINT OF THE TANKS. REQUIRED TO PROVIDE FOR PROPER TANK HOLD DOWN, AND TO PREVENT ACCIDENTAL DRILLING INTO TANK. |
| 5 | SINGLE 1" CONDUIT TO EACH SUBMERSIBLE PUMP. PROVIDE SEAL-OFF AT SUMP & BUILDING WIRING TROUGH. CONTAINS LINE VOLTAGE WIRING. ALL CONDUIT PENETRATIONS MUST BE MADE WITH ROBROY PVC COATED CONDUIT ONLY. | 14 | CUT CORNER WHERE MEETING ASPHALT PAVING ONLY. SQUARE CORNERS WHERE MEETING CONCRETE. |
| 6 | SINGLE 1" CONDUIT TO EACH TANK. LOOP HOME RUN FROM INTERSTITIAL SENSOR LOCATION TO CONTAINMENT SUMP SENSORS & TANK GAUGES. PROVIDE SEAL-OFF IN BUILDING & AT TANK. ROUTE TO INTRINSICALLY SAFE TROUGH IN BUILDING. CONTAINS ONLY LOW VOLTAGE WIRING FOR SENSORS. ALL CONDUIT PENETRATIONS MUST BE MADE WITH ROBROY PVC COATED CONDUIT ONLY. | 15 | DIESEL DESIGN USES JUST ONE PRODUCT LINE TO DIESEL DISPENSER. |
| 7 | USE PEA GRAVEL CONSISTING OF NATURALLY ROUNDED AGGREGATE, MIN 3/8" & MAX OF 3/4" IN SIZE, FREE OF CLAY, SLAG, CINDERS, OR DEBRIS. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER'S & OWNER'S FIELD REPRESENTATIVE. | 17 | SEE SITE SPECIFIC PLANS FOR ACTUAL TANK SIZES, PLACEMENT, AND ORIENTATION. FINAL SITE SPECIFIC TANK LAYOUTS SHALL BE APPROVED BY THE LOCAL DISTRIBUTION TERMINAL MANAGER OR HIS AGENT. FINAL LOCATION SIGN-OFF SHALL BE DOCUMENTED. |
| 8 | 6" OBSERVATION SUMP DEPTH SHALL BE 24" BELOW TANK. DO NOT PENETRATE SOIL. DO NOT USE PVC CEMENT ON BOTTOM CAP OR OTHER COUPLINGS OR FITTINGS. | 18 | REFER TO SITE SPECIFIC PLANS FOR ACTUAL PIPE RUNS & NUMBER OF PRODUCT LINES (1 OR 2 PER SUMP). |
| 9 | LAYOUT TANKS & STAGE II VAPOR RECOVERY PIPING SUCH THAT THE STAGE II PIPING DRAINS & ENTERS INTO REGULAR UNLEADED TANK FIRST W/ 3" CONNECTIONS. ALL OTHER CONNECTIONS MADE W/ 2". | 19 | ANY STRUCTURE THAT ENCLOSES WITHIN THE UST STRUCTURAL EXCLUSION ZONE, WHERE NOT OTHERWISE AVAILABLE, SHALL BE IDENTIFIED ON THE PLANS. IT WILL BE THE ARCHITECT OF RECORD'S OBLIGATION TO IDENTIFY AND COORDINATE WITH THE STRUCTURAL ENGINEER OF THE NEED TO DESIGN THE ENCLOSED STRUCTURAL ELEMENT(S) TO MITIGATE ANY LATERAL LOAD TRANSMITTANCE TO THE UNDERGROUND STORAGE TANKS. |

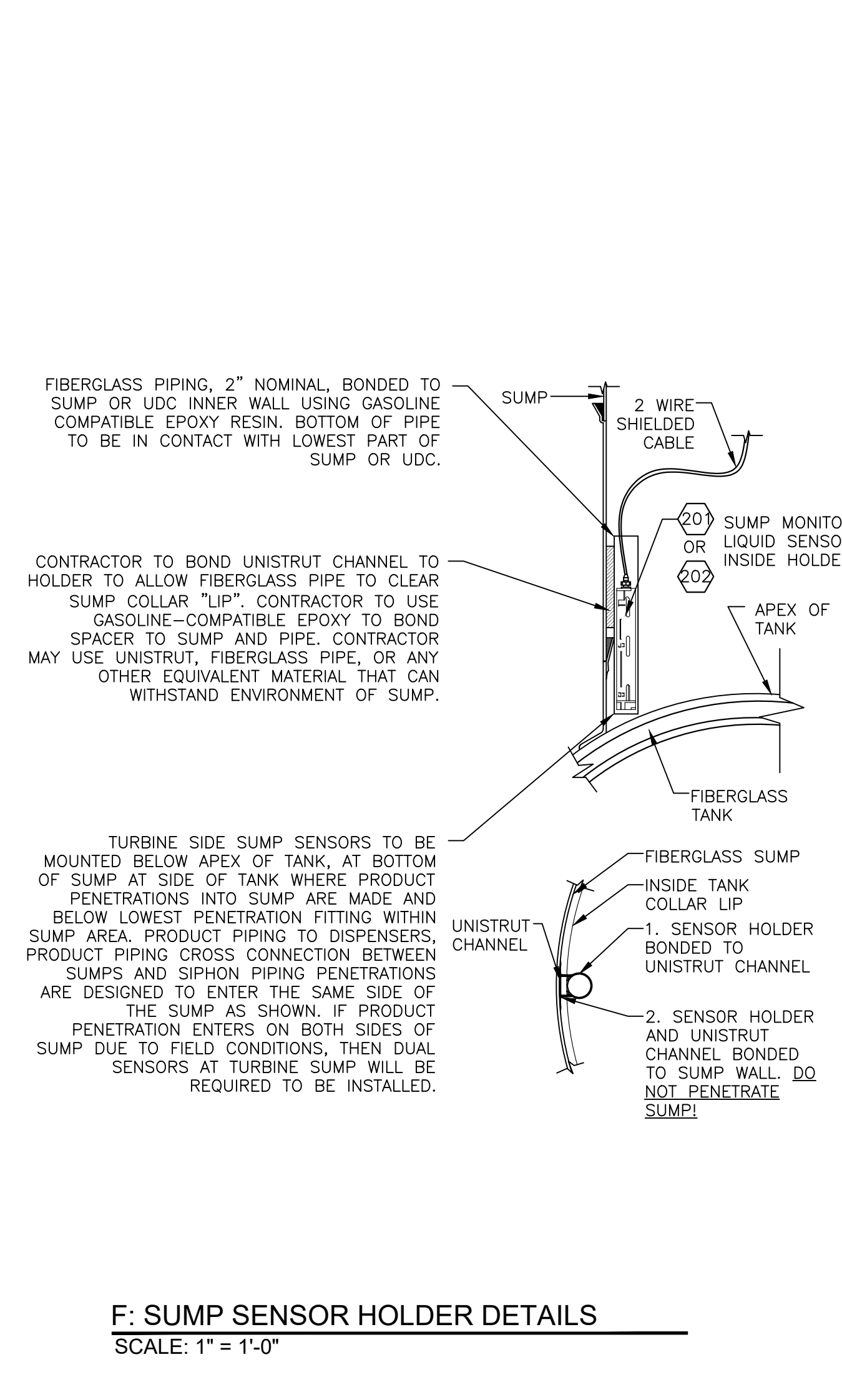
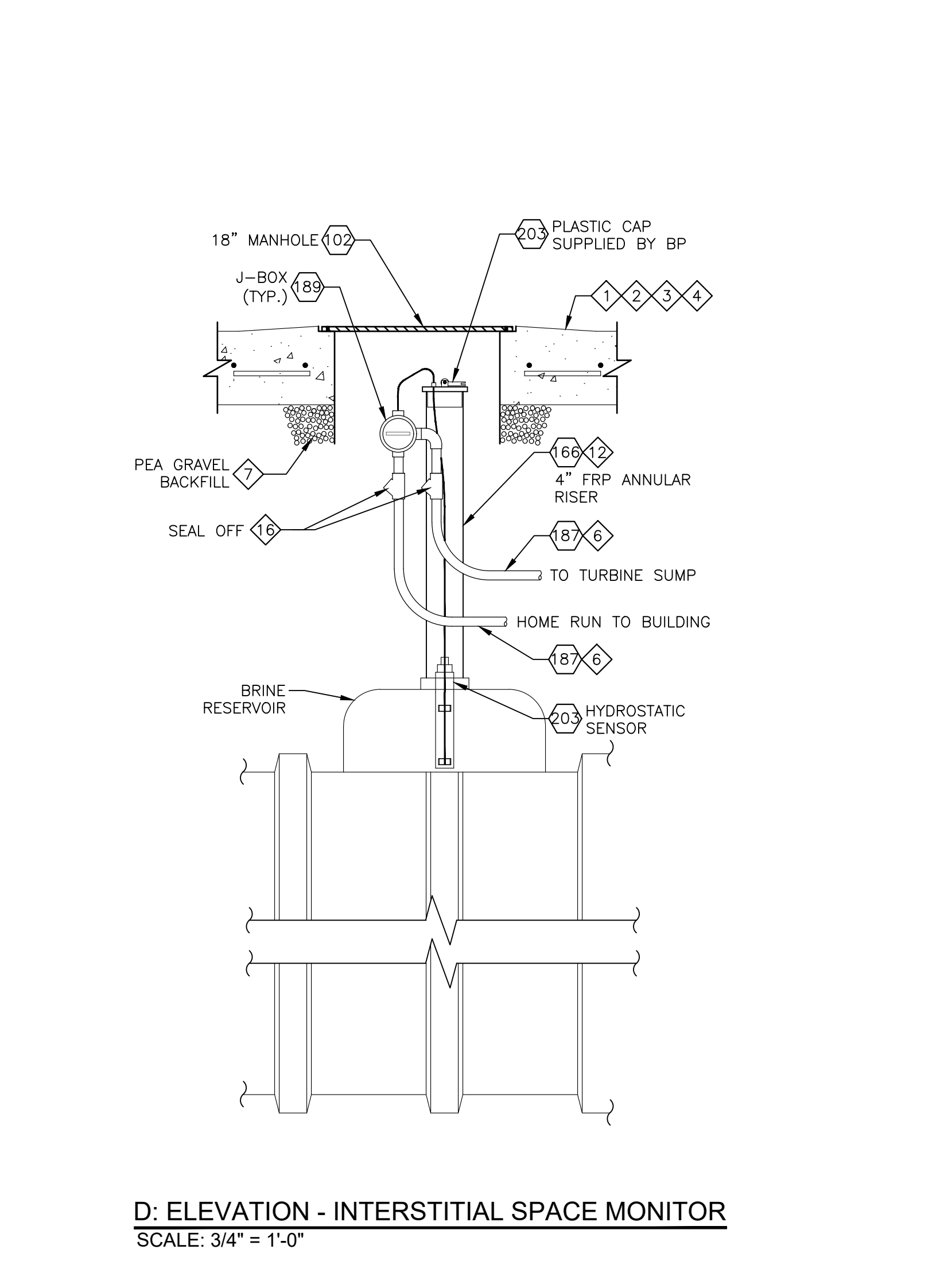
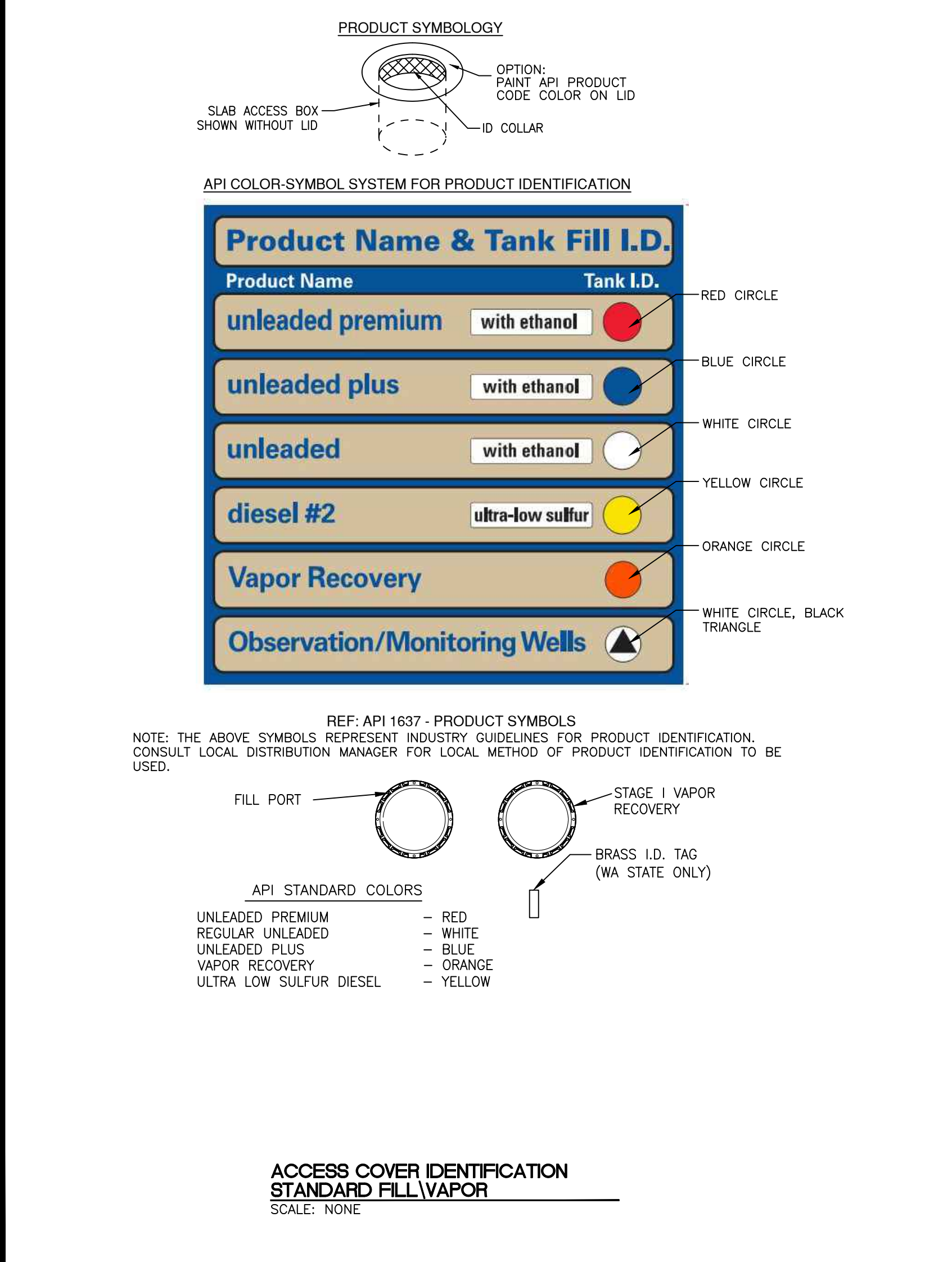
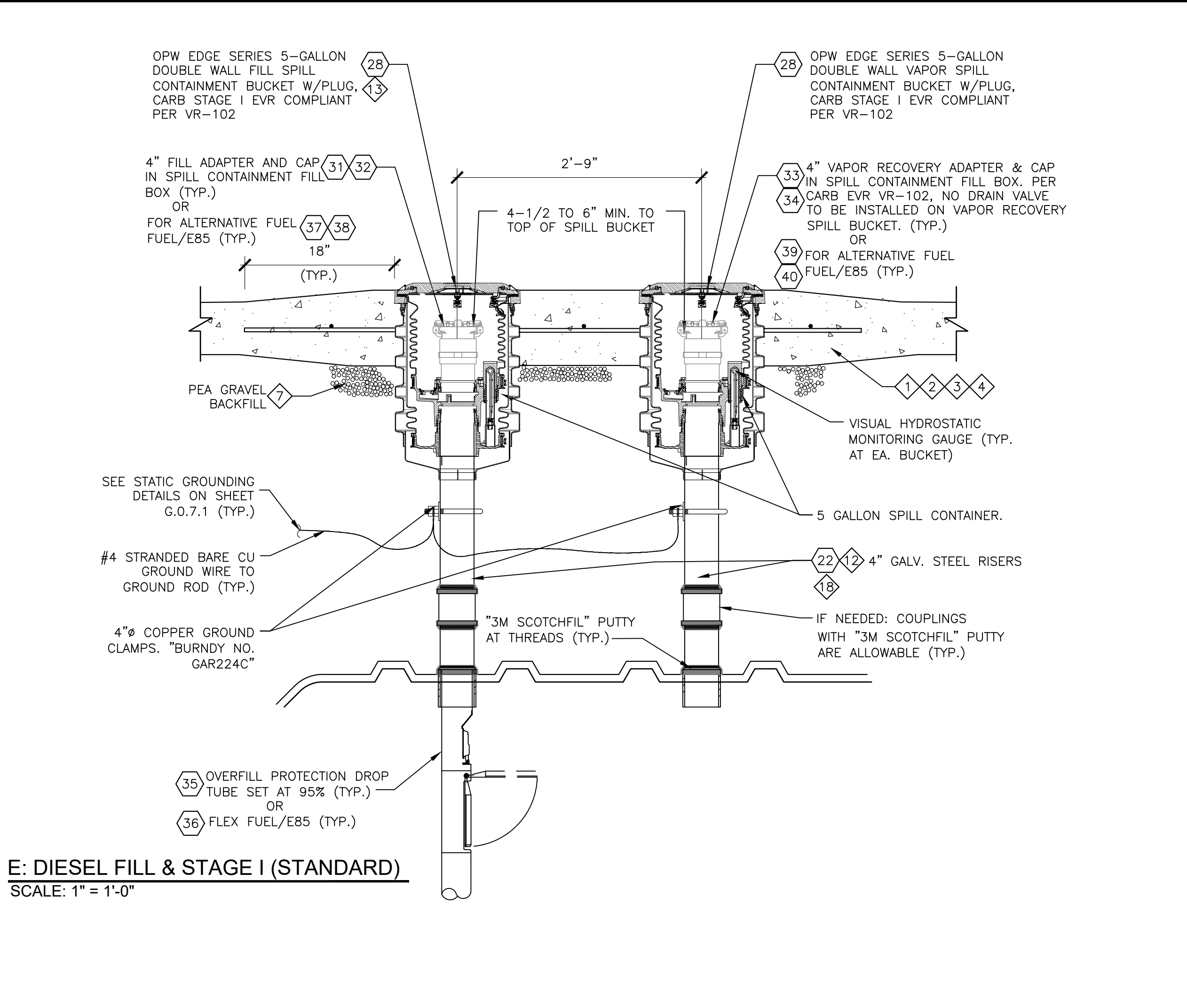
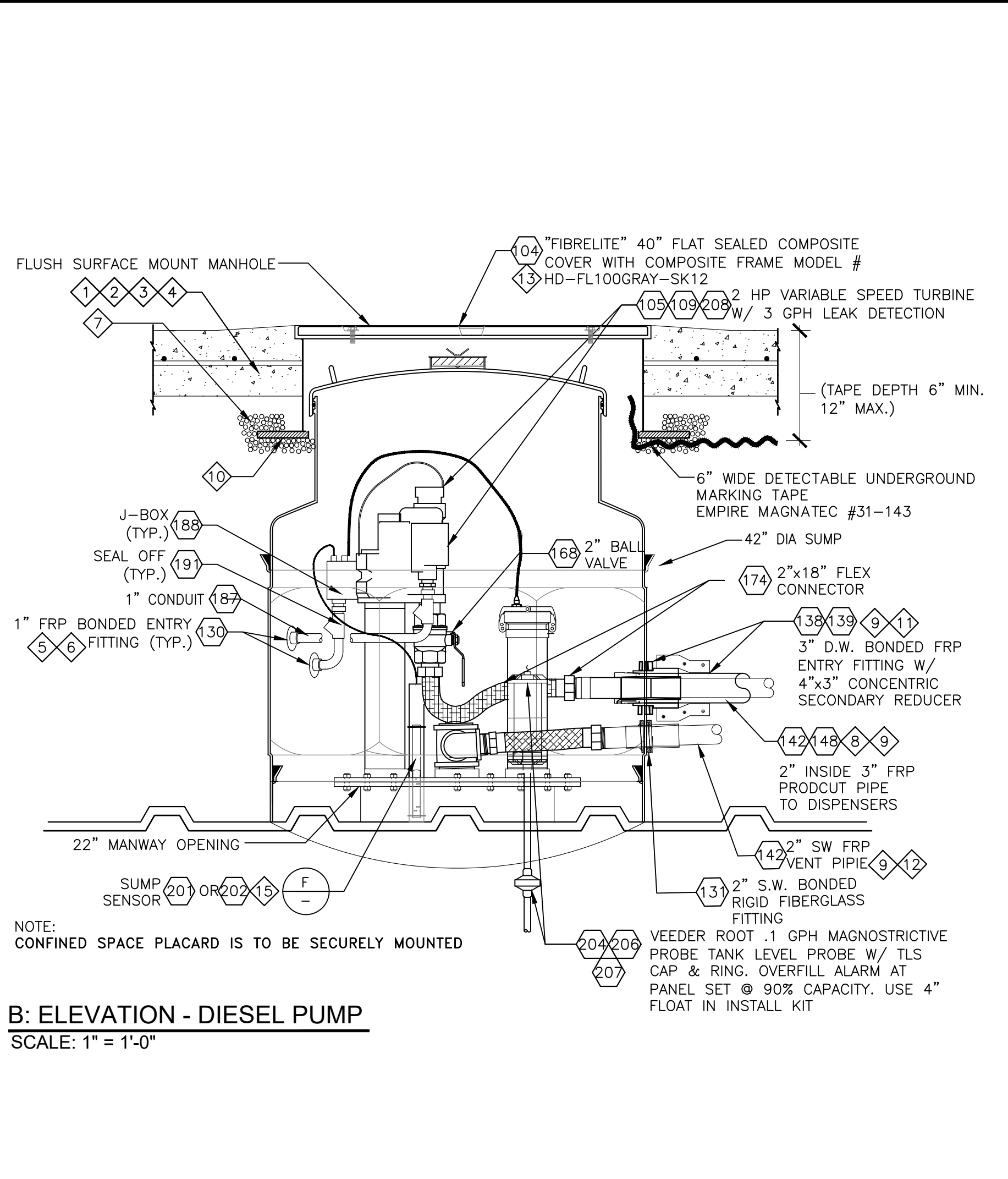
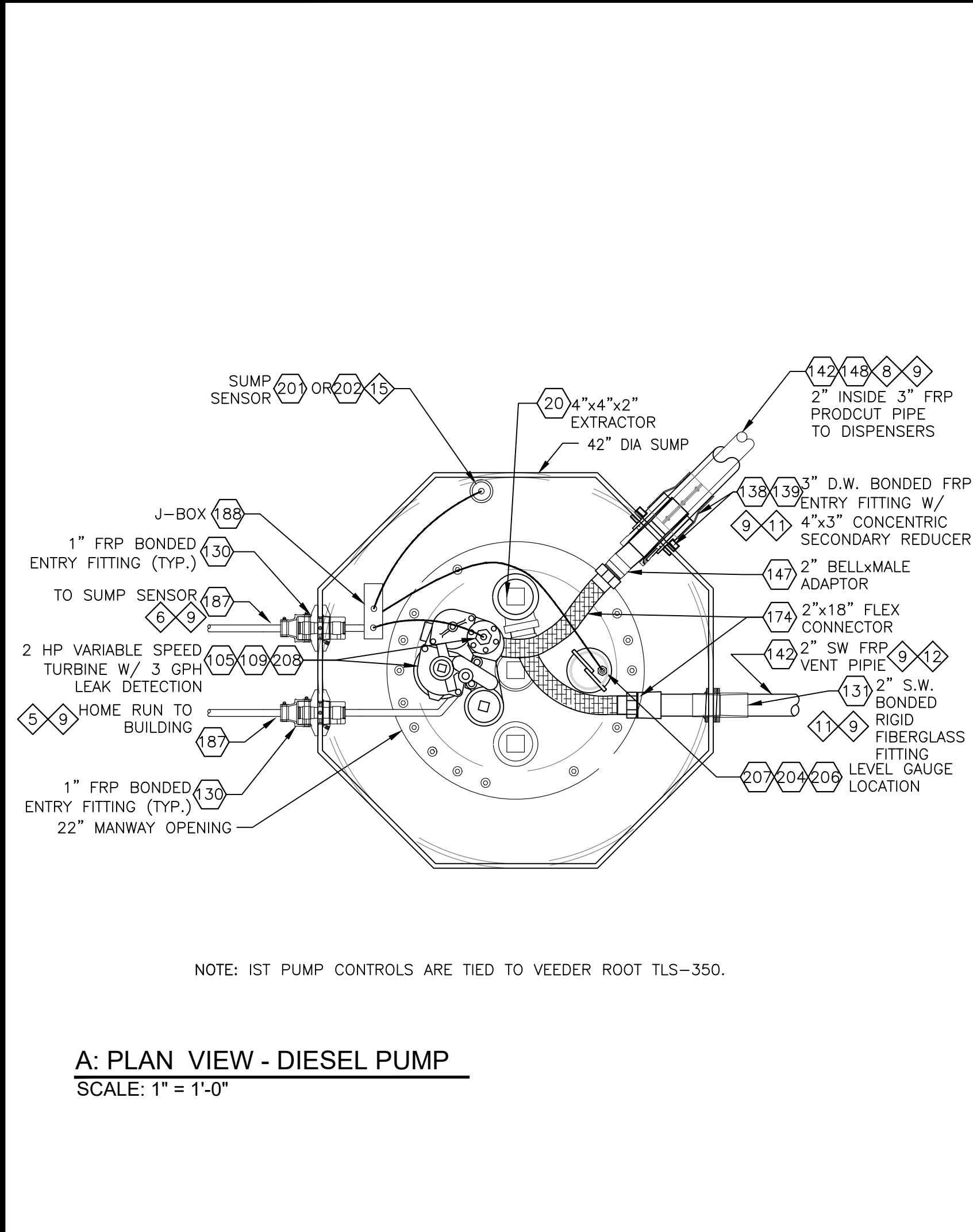




G: ELEVATION & PLAN VIEW - TURBINE SIDE SUMP
SCALE: 1" = 1'-0"



NOTE:
INDICATES ITEMS FOUND ON MATERIALS
LIST SHEETS M.5.1.01 & M.5.1.02



# - NOTES	
1	SLOPE CONCRETE AWAY FROM ALL MANHOLES 1" RISE OVER 12" RUN
2	FIBER REINFORCEMENT TO BE USED. PRE-MIX UNIFORMLY THROUGHOUT CONCRETE.
3	REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM REINFORCE SURFACE.
4	REINFORCE CONCRETE SLAB AROUND MANHOLE WITH 4-#4 REBAR 60" IN LENGTH. PLACE REBAR 6" FROM SIDES OF BOX.
5	SINGLE 1" CONDUIT TO EACH SUBMERSIBLE PUMP. PROVIDE SEAL OFF AT BUILDING WIRING TROUGH SUMP. CONTAINS LINE VOLTAGE WIRING.
6	SINGLE 1" CONDUIT TO EACH TANK. LOOP HOME RUN FROM INTERSTITIAL SENSOR LOCATION TO CONTAINMENT SUMP SENSORS & TANK GAUGES. PROVIDE SEAL-OFF IN BUILDING & AT TANK. ROUTE TO INTRINSICALLY SAFE TROUGH IN BUILDING. CONTAINS ONLY LOW VOLTAGE WIRING FOR SENSORS.
7	PEA GRAVEL BACKFILL. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER AND OWNER'S FIELD REPRESENTATIVE.
8	PIPING SHALL BE LAID AND CONTINUOUSLY SUPPORTED ON A 6" COMPACTED PEA GRAVEL BEDDING. PIPING SHALL NOT BE SUPPORTED BY BLOCKS, PLANKS, OR OTHER DEBRIS.
9	ALL ENTRIES TO BE PERPENDICULAR TO CONTAINMENT SUMP. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MAXIMUM ANGLE ALLOWANCE.
10	PLYWOOD 48" X 48" X 3/4" PLACED TO ASSURE 2" CLEARANCE BETWEEN CONCRETE AND CONTAINMENT SUMP.
11	N.O.V. RED THREAD IIA PENETRATION FITTINGS SHOWN. ALTERNATE FITTINGS MAY NOT BE USED.
12	REAM ALL RISERS FOR FULL PIPE BORE IF REQUIRED.
13	INSTALL TANK ID MARKERS IN THE SPILL CONTAINMENT MANHOLES. COVERS SHALL BE PRIMED AND PAINTED ACCORDING TO SPECIFICATIONS.
14	SECONDARY CONTAINMENT FOR ALL VENT AND STAGE II VAPOR RECOVERY PIPING ONLY WHEN REQUIRED BY LOCAL JURISDICTION.
15	COAT ALL BURIED GALVANIZED STEEL PIPING WITH COAL TAR EPOXY.
16	SEAL OFF REQUIRED ONLY AT FIRST SUMP HOME RUN FROM VEEDER ROOT PANEL.
17	OVERFLOW PROTECTION: UST OVERFLOW COMPLIANCE IS ACHIEVED BY USE OF OVERFLOW PREVENTION DROP TUBE FLAPPER VALVE SET AT 95% AND IS IN ACCORDANCE WITH FEDERAL AND STATE GUIDELINES FOR UST OVERFILL REQUIREMENTS. AN OVERFILL ALARM AND ACKNOWLEDGE SWITCH TIED INTO THE VEEDER ROOT AUTOMATIC TANK GAUGE SYSTEM. THE MONITORING SYSTEM PROVIDES AN AUDIBLE AND VISUAL ALARM WHEN THE TANK(S) ARE FILLED TO THE 90% LEVEL.
18	FIELD COATING AND WRAPPING ALL RISERS AND STATIC GROUND CONNECTIONS WITH 3M SCOTCHTAPE PIPE PRIMER & 3M TEMFLEX 10 MIL TAPE OR CONTRACTOR MAY USE 10 MIL SELF-PRIME PROSELECT PIPE WRAP TAPE.
NOTE: XX INDICATES ITEMS FOUND ON MATERIALS LIST SHEETS M.5.1.01 & M.5.1.02	

CLIENT:

bp

ARCO
BP WEST COAST PRODUCTS, LLC

B

Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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SEAL:

HAL P. GRUBB
STATE OF WASH. NOTARY
REGISTERED PROFESSIONAL ENGINEER
10/04/2023

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUTALLUP, WASHINGTON

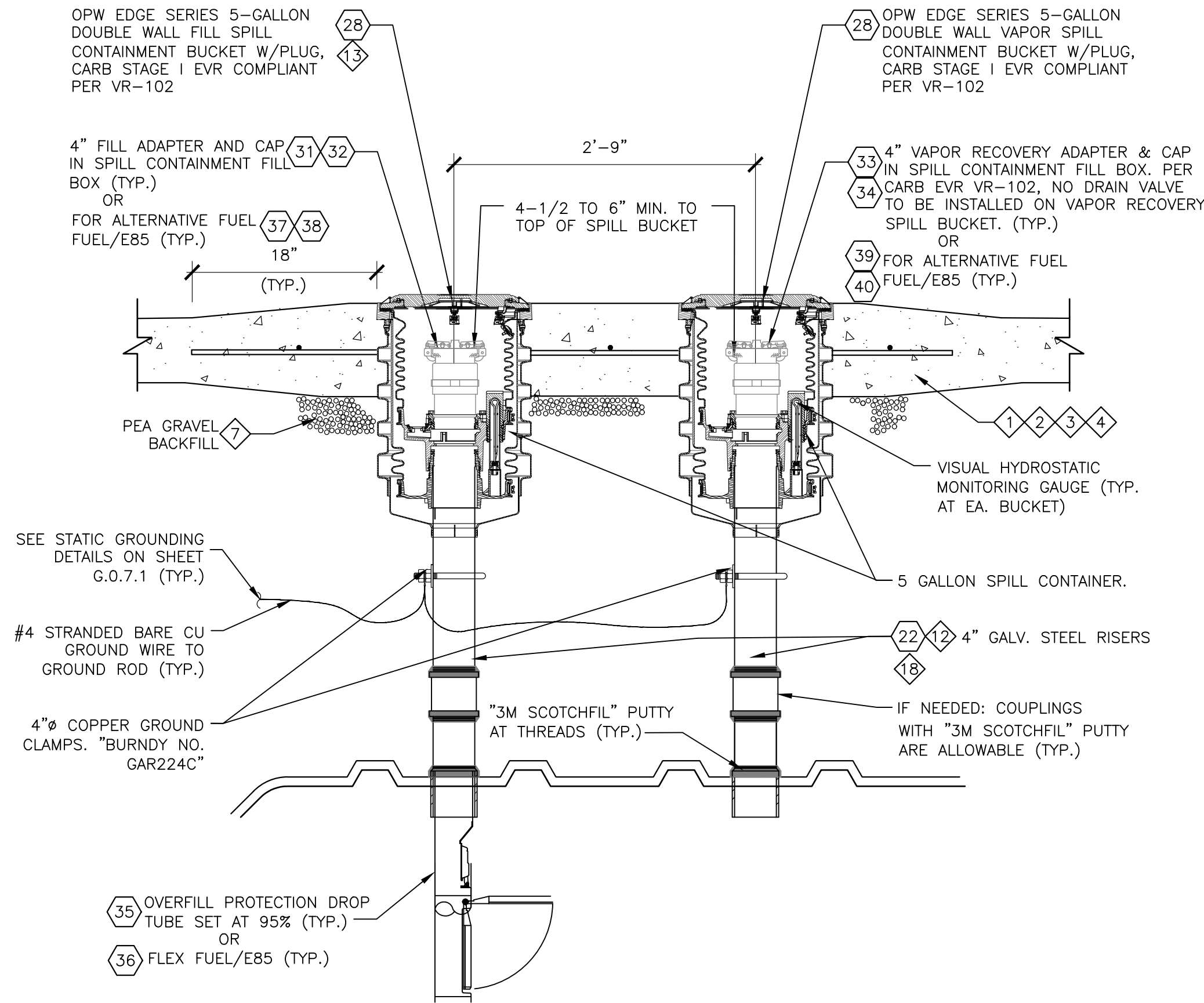
FACILITY #TBD

DESIGNED BY: NP/RF ALLIANCE ZADNE:
CHECKED BY: OV BP REP:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730
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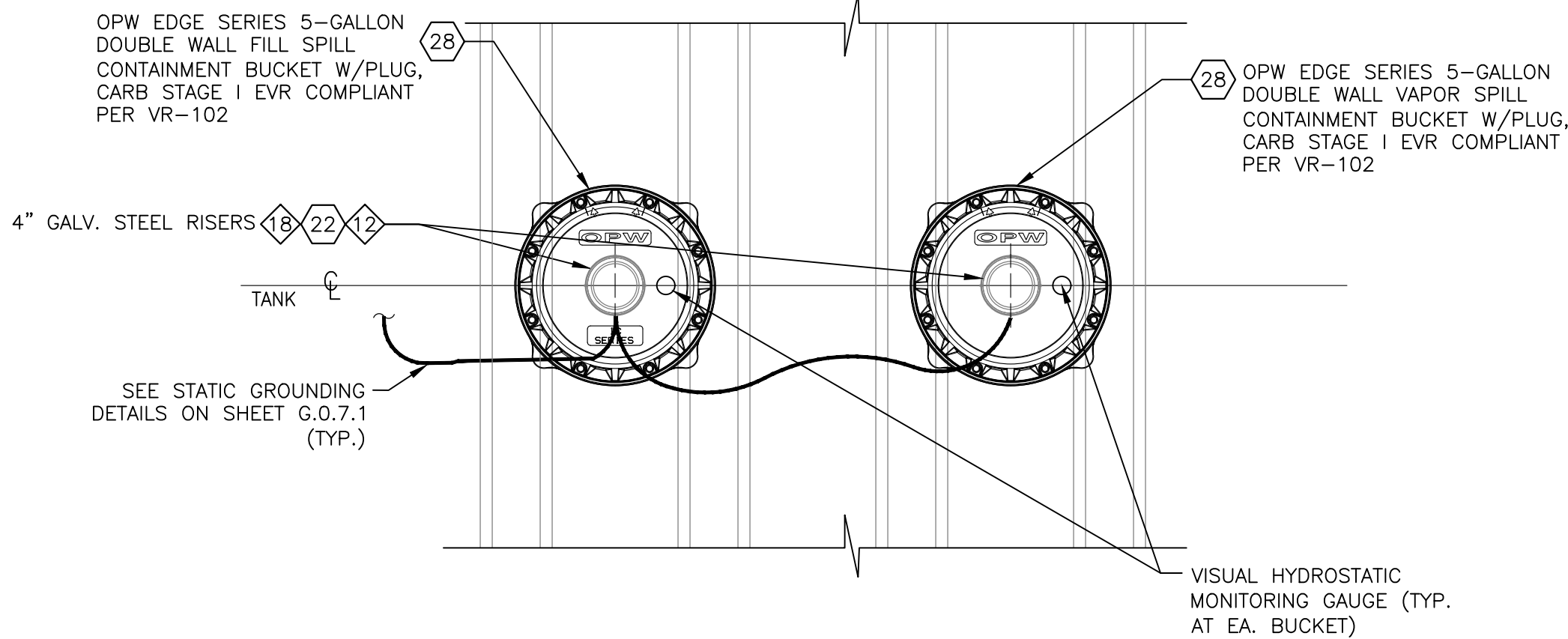
**DIESEL TANK SUMP AND FITTING
INSTALLATION DETAILS
(STANDARD OPW)**

SHEET NO:

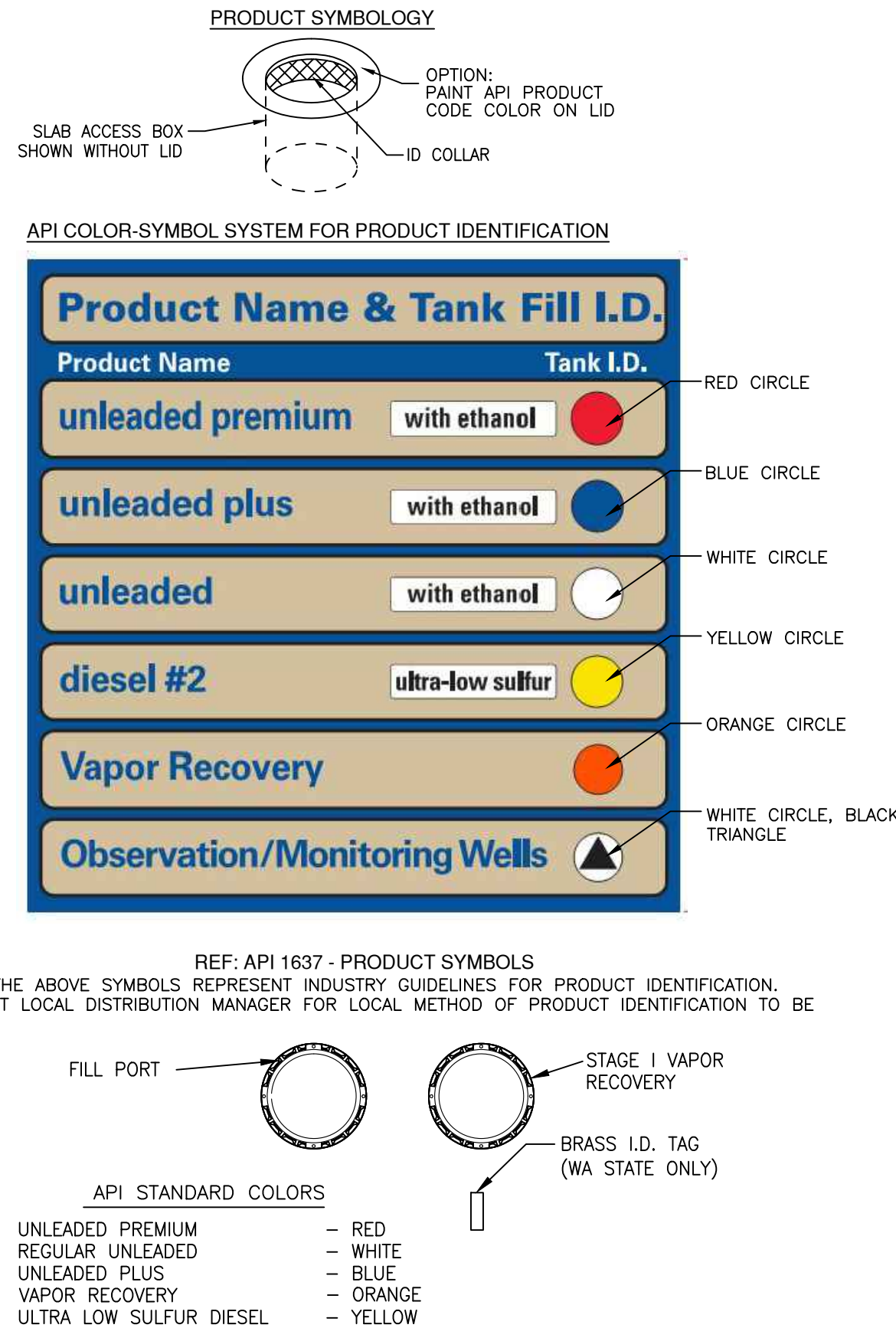
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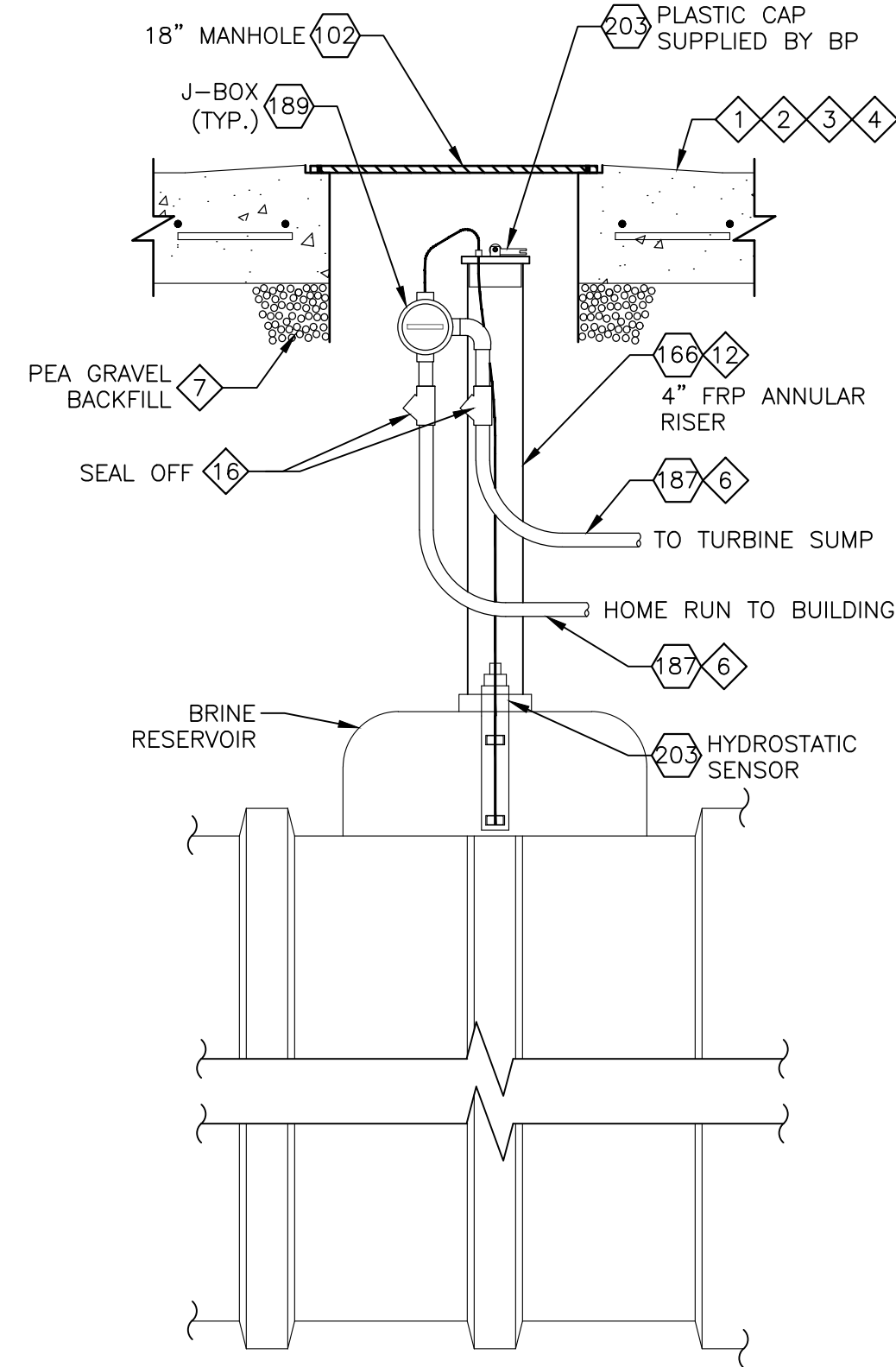
A: ELEVATION - GASOLINE FILL & STAGE I RISERS (STANDARD)
SCALE: 1" = 1'-0"



B: TYPICAL TANK TOP DETAIL AT FILL & STAGE I RISERS
SCALE: 1" = 1'-0"



**ACCESS COVER IDENTIFICATION
STANDARD FILL/VAPOR**
SCALE: NONE



E: ELEVATION - INTERSTITIAL SPACE MONITOR
SCALE: 3/4" = 1'-0"

- NOTES

- 1 SLOPE CONCRETE AWAY FROM ALL MANHOLES 1" RISE OVER 12" RUN
- 2 FIBER REINFORCEMENT TO BE USED. PRE-MIX UNIFORMLY THROUGHOUT CONCRETE.
- 3 REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
- 4 REINFORCE CONCRETE SLAB AROUND MANHOLE WITH 4-#4 REBAR 60" IN LENGTH. PLACE REBAR 6" FROM SIDES OF BOX.
- 5 SINGLE 1" CONDUIT TO EACH SUBMERSIBLE PUMP. PROVIDE SEAL OFF AT BUILDING WIRING TROUGH SUMP. CONTAINS LINE VOLTAGE WIRING.
- 6 SINGLE 1" CONDUIT TO EACH TANK. LOOP HOME RUN FROM INTERSTITIAL SENSOR LOCATION TO CONTAINMENT SUMP SENSORS & TANK GAUGES. PROVIDE SEAL-OFF IN BUILDING & AT TANK. ROUTE TO INTRINSICALLY SAFE TROUGH IN BUILDING. CONTAINS ONLY LOW VOLTAGE WIRING FOR SENSORS.
- 7 PEA GRAVEL BACKFILL. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER AND OWNER'S FIELD REPRESENTATIVE.
- 8 PIPING SHALL BE LAID AND CONTINUOUSLY SUPPORTED ON A 6" COMPACTED PEA GRAVEL BEDDING. PIPING SHALL NOT BE SUPPORTED BY BLOCKS, PLANKS, OR OTHER DEBRIS.
- 9 ALL ENTRIES TO BE PERPENDICULAR TO CONTAINMENT SUMP. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MAXIMUM ANGLE ALLOWANCE.
- 10 PLYWOOD 48" X 48" X 3/4" PLACED TO ASSURE 2" CLEARANCE BETWEEN CONCRETE AND CONTAINMENT SUMP.
- 11 SMITH FIBERCAST PENETRATION FITTINGS SHOWN. ALTERNATE FITTINGS MAY NOT BE USED.
- 12 REAM ALL RISERS FOR FULL PIPE BORE IF REQUIRED.
- 13 INSTALL TANK ID MARKERS IN THE SPILL CONTAINMENT MANHOLES. COVERS SHALL BE PRIMED AND PAINTED ACCORDING TO SPECIFICATIONS.
- 14 SECONDARY CONTAINMENT FOR ALL VENT AND STAGE II VAPOR RECOVERY PIPING ONLY WHEN REQUIRED BY LOCAL JURISDICTION.
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- 16 SEAL OFF REQUIRED ONLY AT FIRST SUMP HOME RUN FROM VEEDER ROOT PANEL.
- 17 OVERFLOW PROTECTION: UST OVERFLOW COMPLIANCE IS ACHIEVED BY USE OF OVERFLOW PREVENTION DROP TUBE FLAPPER VALVE SET AT 95% AND IS IN ACCORDANCE WITH FEDERAL AND STATE GUIDELINES FOR UST OVERFILL REQUIREMENTS.
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- 18 FIELD COATING AND WRAPPING ALL RISERS AND STATIC GROUND CONNECTIONS WITH 3M SCOTCHRAPE PIPE PRIMER & 3M TEMFLEX 10 MIL TAPE OR CONTRACTOR MAY USE 10 MIL SELF-PRIME PROSECT PIPE WRAP TAPE.

NOTE:
(XX) INDICATES ITEMS FOUND ON MATERIALS
LIST SHEETS M.5.1.01 & M.5.1.02

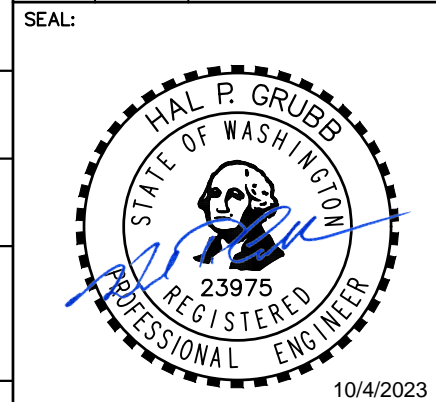
CLIENT:

bp

ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
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DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

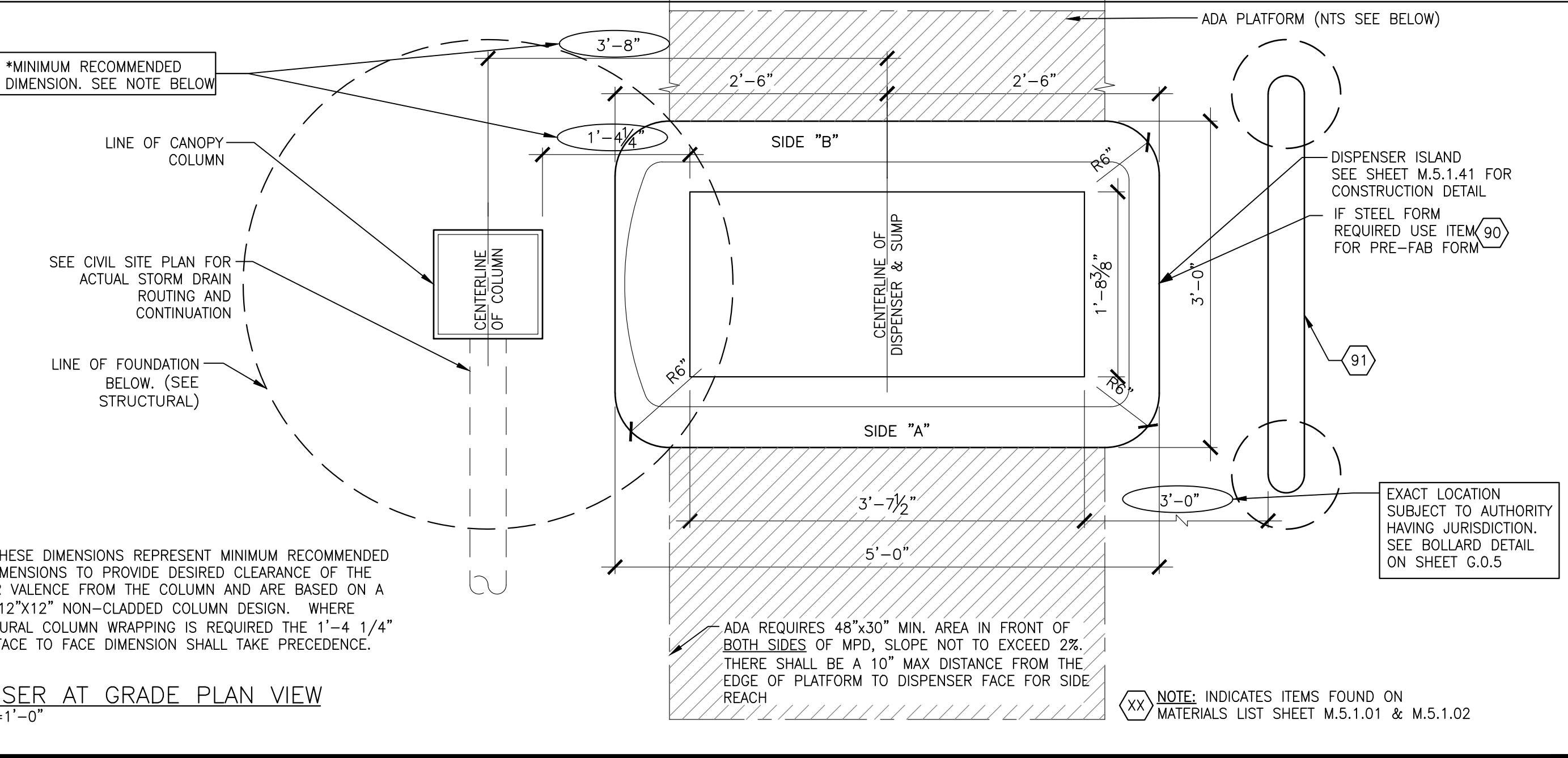
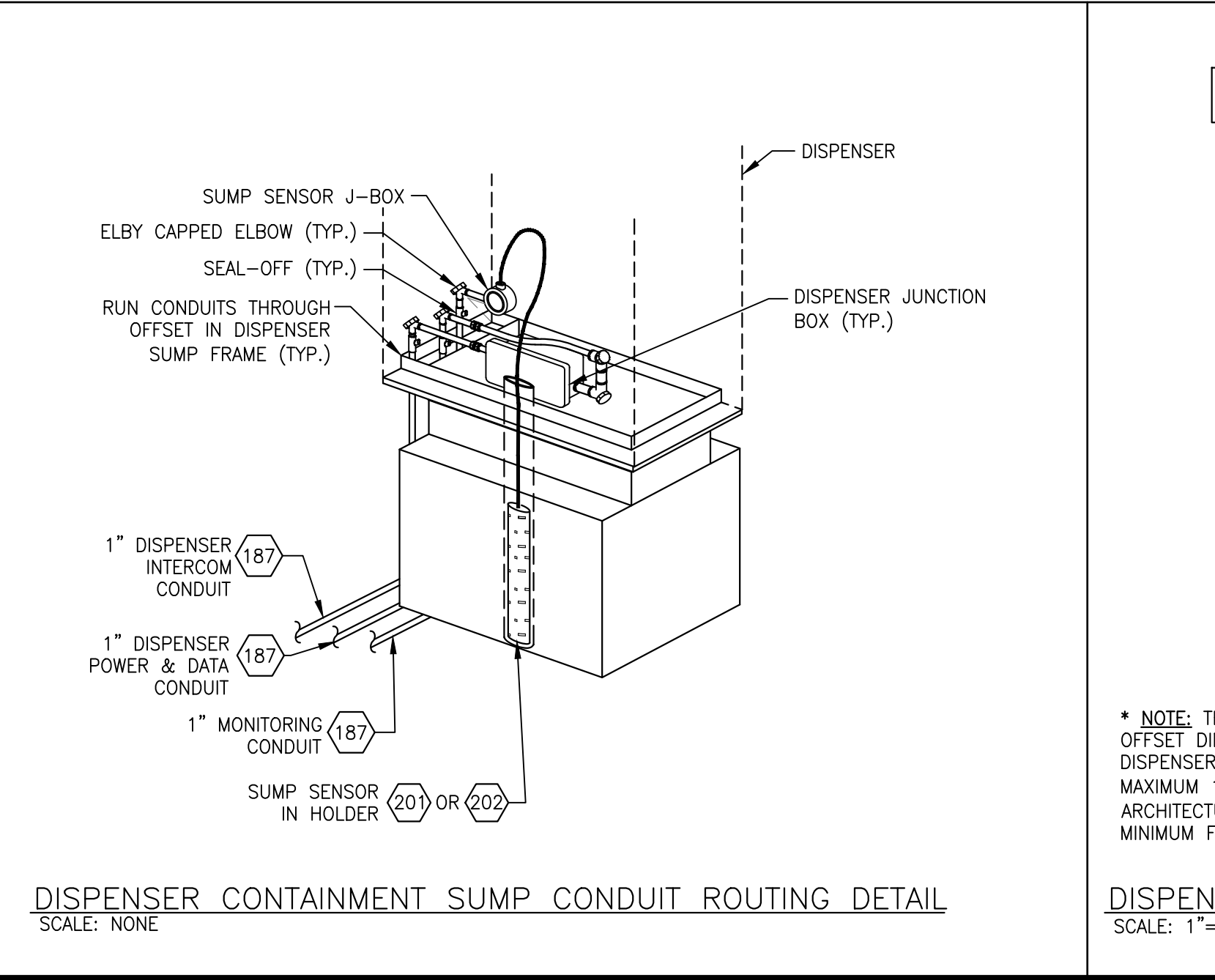
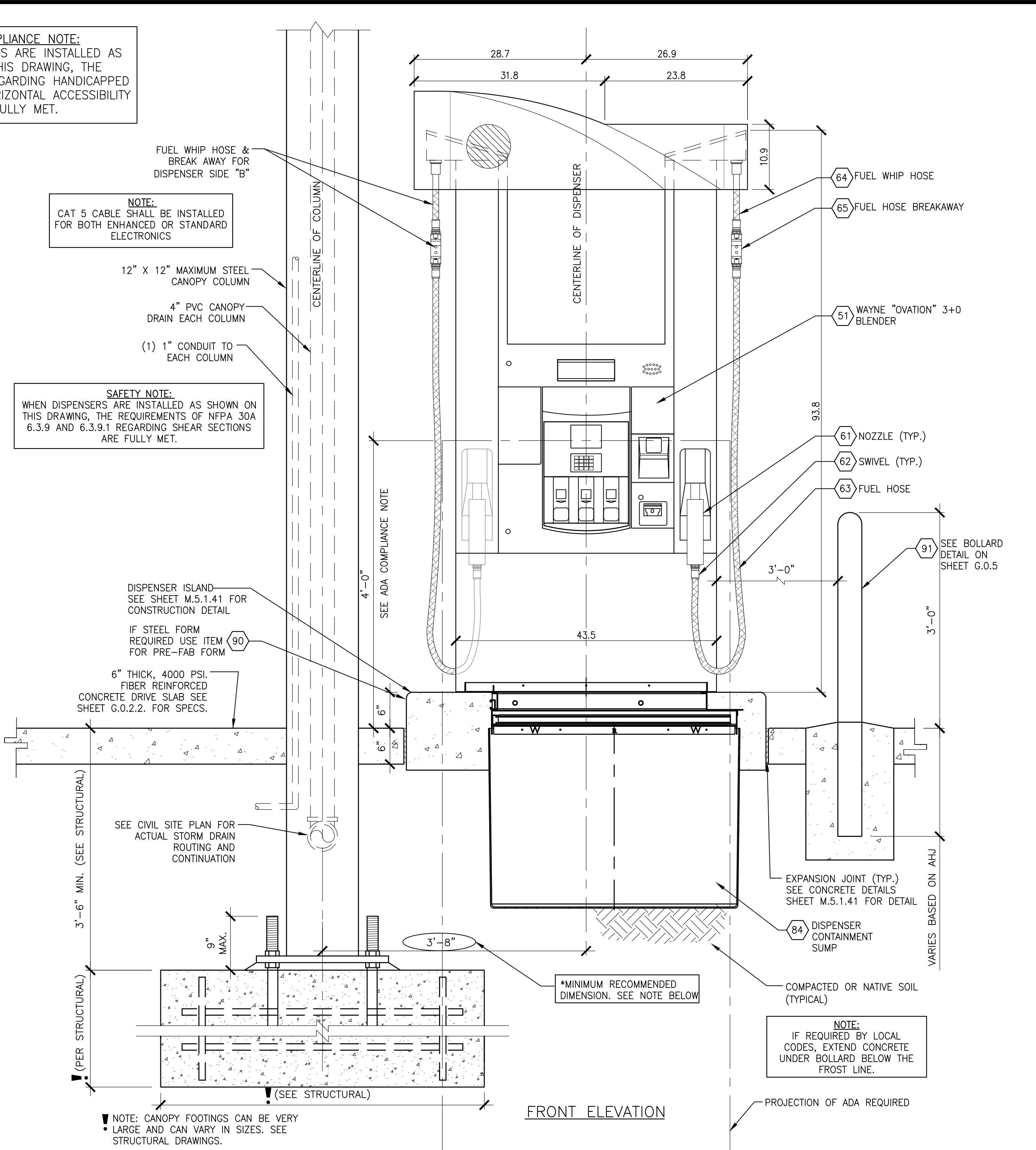
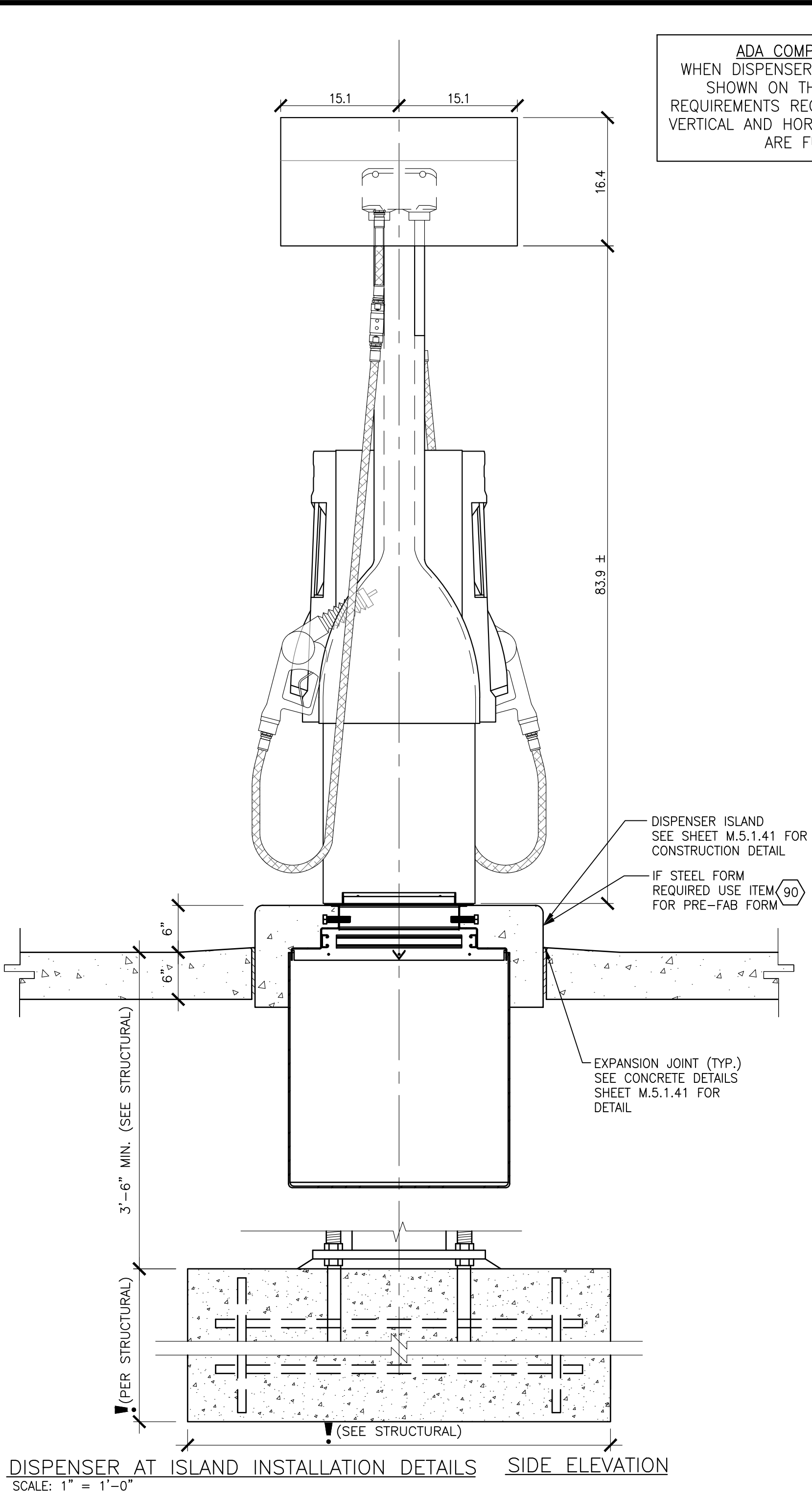
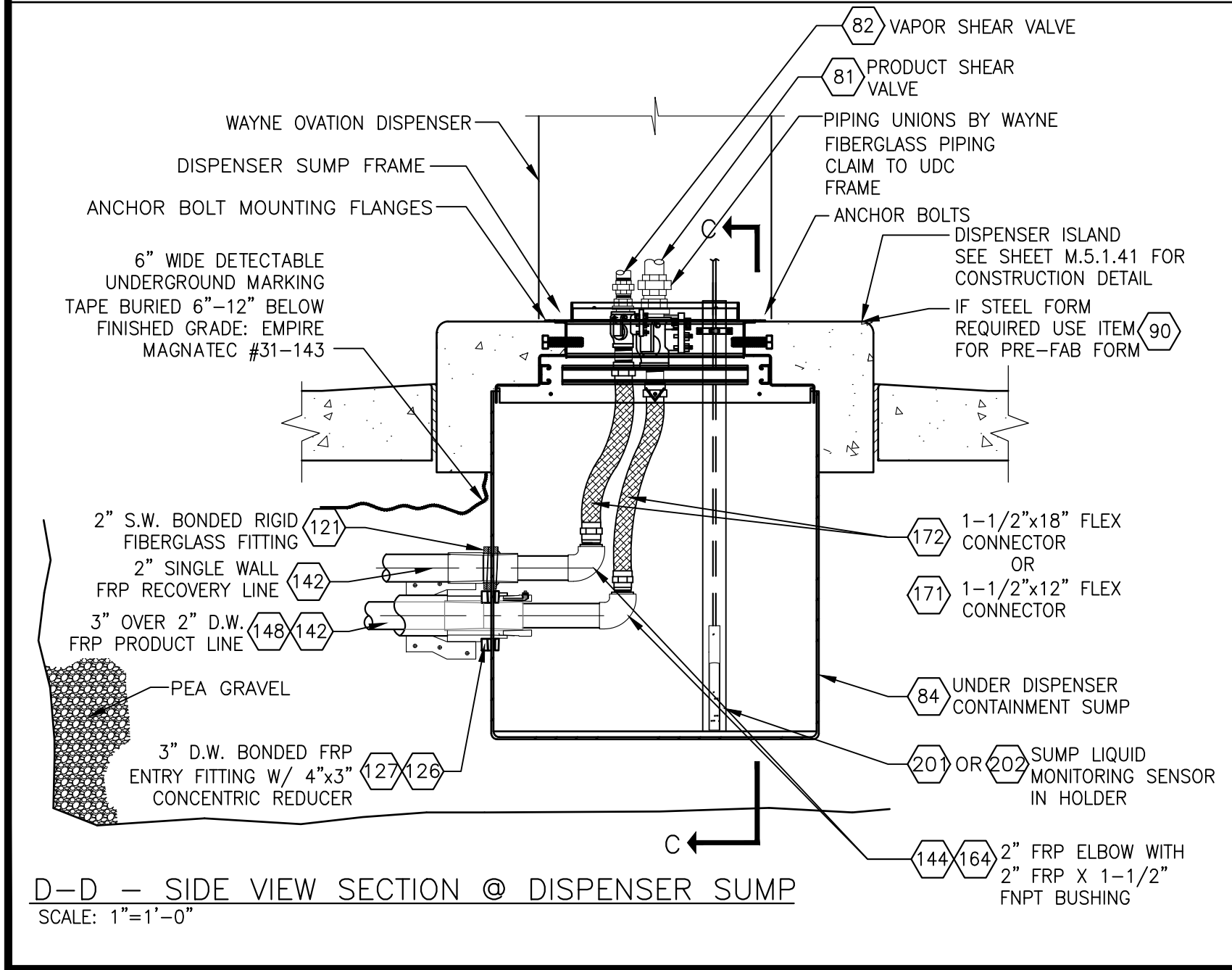
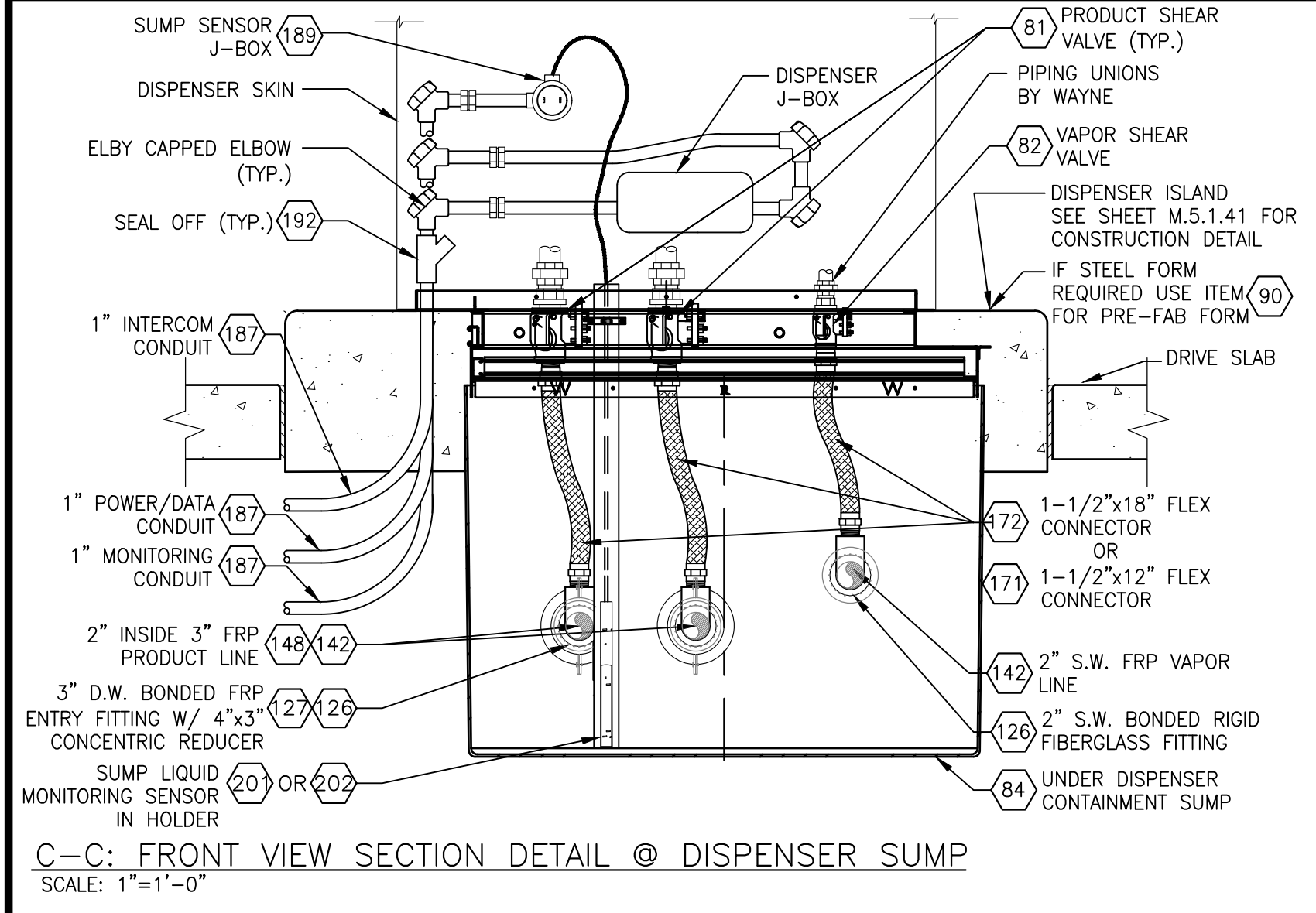
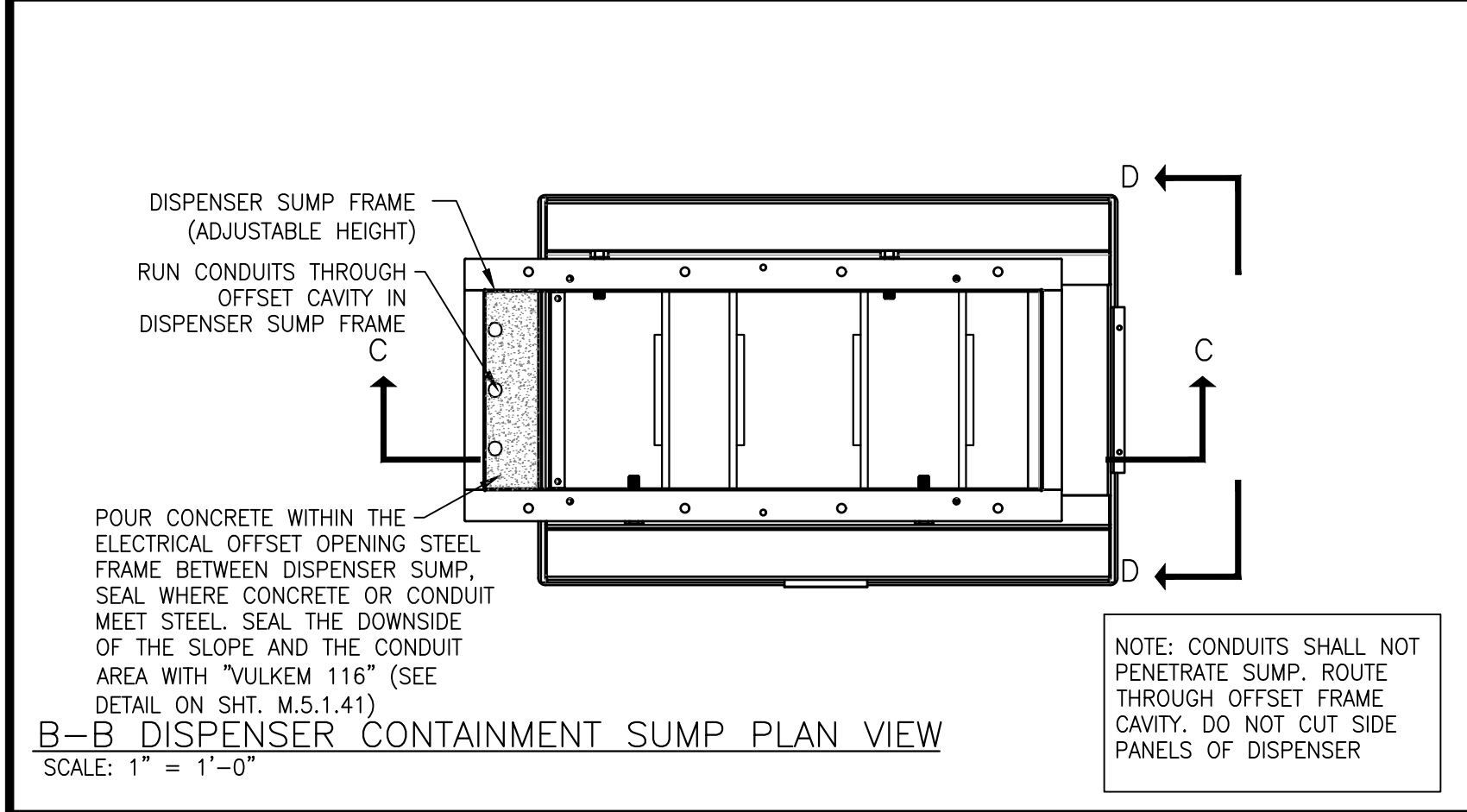
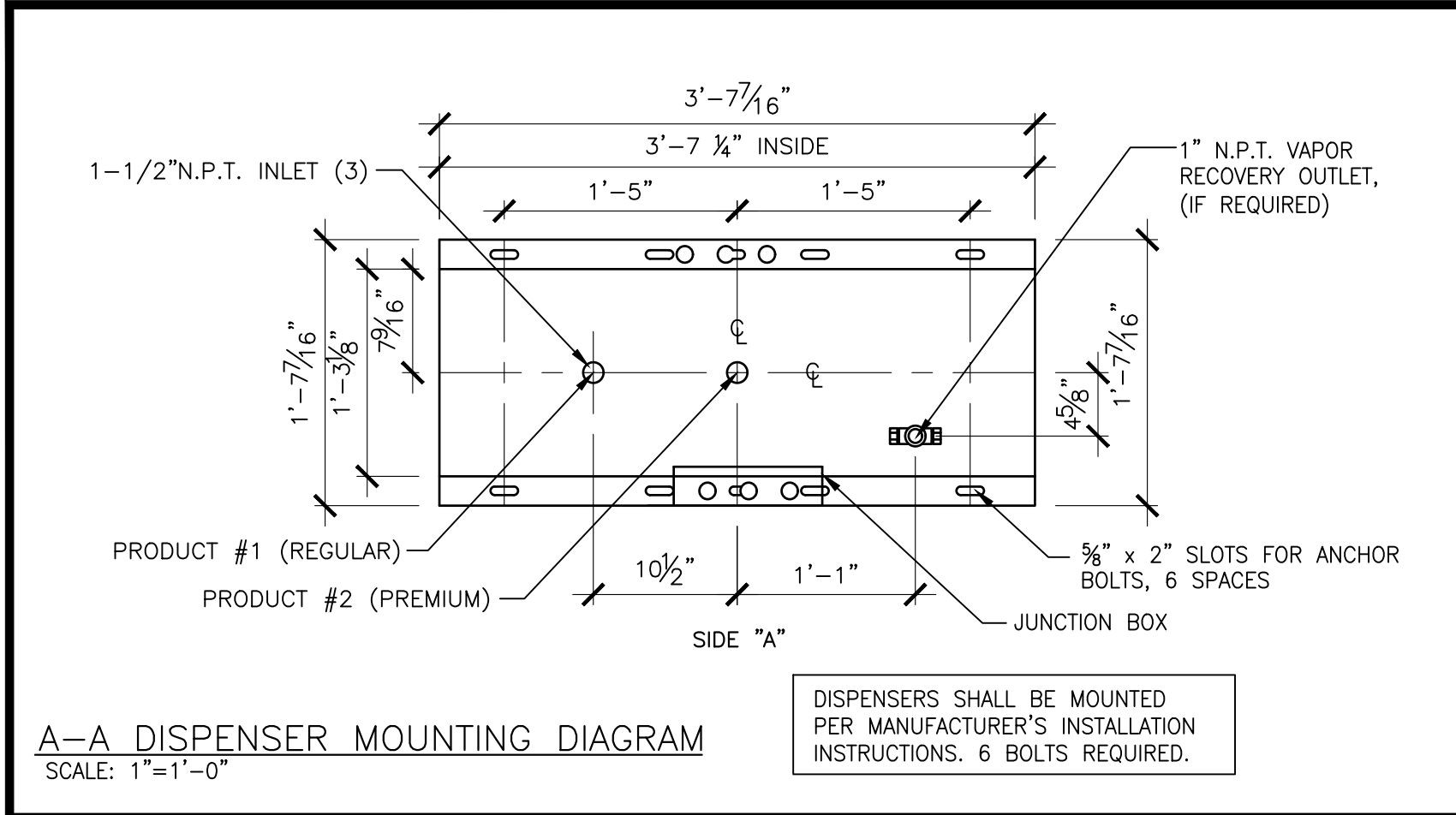
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CHECKED BY: OV BP REP:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730

DRAWING TITLE:

**FILL VAPOR II
INSTALLATION DETAILS
(STANDARD OPW)**

SHEET NO:

M.5.1.34



CLIENT:

bp

ARCO

BP WEST COAST PRODUCTS, LLC

B

Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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1	10/04/23	PERMIT RELEASE
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SCALE: 1"=1'-0"

10/4/2023

STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
23977

DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN

@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

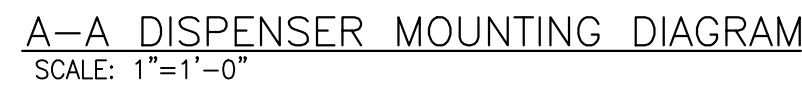
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DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730

DRAWING TITLE:

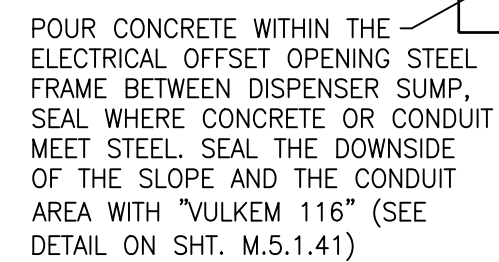
DISPENSER DETAILS:
WAYNE OVATION (3+0) BLEND
DISPENSER INSTALLATION DETAILS
ON ISLANDS (S.W. VAPOR)

SHEET NO:

M.5.1.38



DISPENSERS SHALL BE MOUNTED
PER MANUFACTURER'S INSTALLATION
INSTRUCTIONS. 6 BOLTS REQUIRED.



NOTE: CONDUITS SHALL NOT
PENETRATE SUMP. ROUTE
THROUGH ROOF FRAME

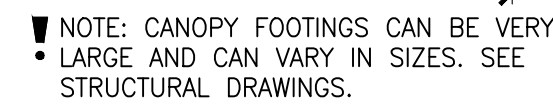
B-B DISPENSER CONTAINMENT SUMP PLAN VIEW
SCALE: 1" = 1'-0"



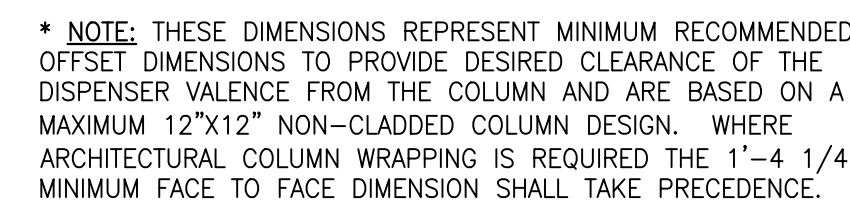
SIDE ELEVATION



ADA COMPLIANCE NOTE:
WHEN DISPENSERS ARE INSTALLED AS
SHOWN ON THIS DRAWING, THE
REQUIREMENTS REGARDING HANDICAPPED
VERTICAL AND HORIZONTAL ACCESSIBILITY
ARE FULLY MET.



FRONT ELEVATION

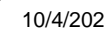


DISPENSER ON ISLAND PLAN VIEW
SCALE: 1"=1'-0"

XX NOTE: INDICATES ITEMS FOUND ON MATERIALS LIST SHEET M.5.1.01 & M.5.1.02



18215 72nd Avenue South
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SEAL:

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/BE	ALLIANCE Z&DM:
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CHECKED BY:	GM	RD. REQA:
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CHECKED BY:	UV	OF REFM:

DRAWN BY:	NP/RF	ALLIANCE PM:
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VERSION: V-15.0	PROJECT NO:
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01/01/2023	2173
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01/01/2020	
DRAWING TITLE:	

DRAWING TITLE:

DISPENSER DETAILS:

WAYNE OVATION (3+1) BLEND

DISPENSER INSTALLATION D

ON ISLAND (S.W. VAPOUR)

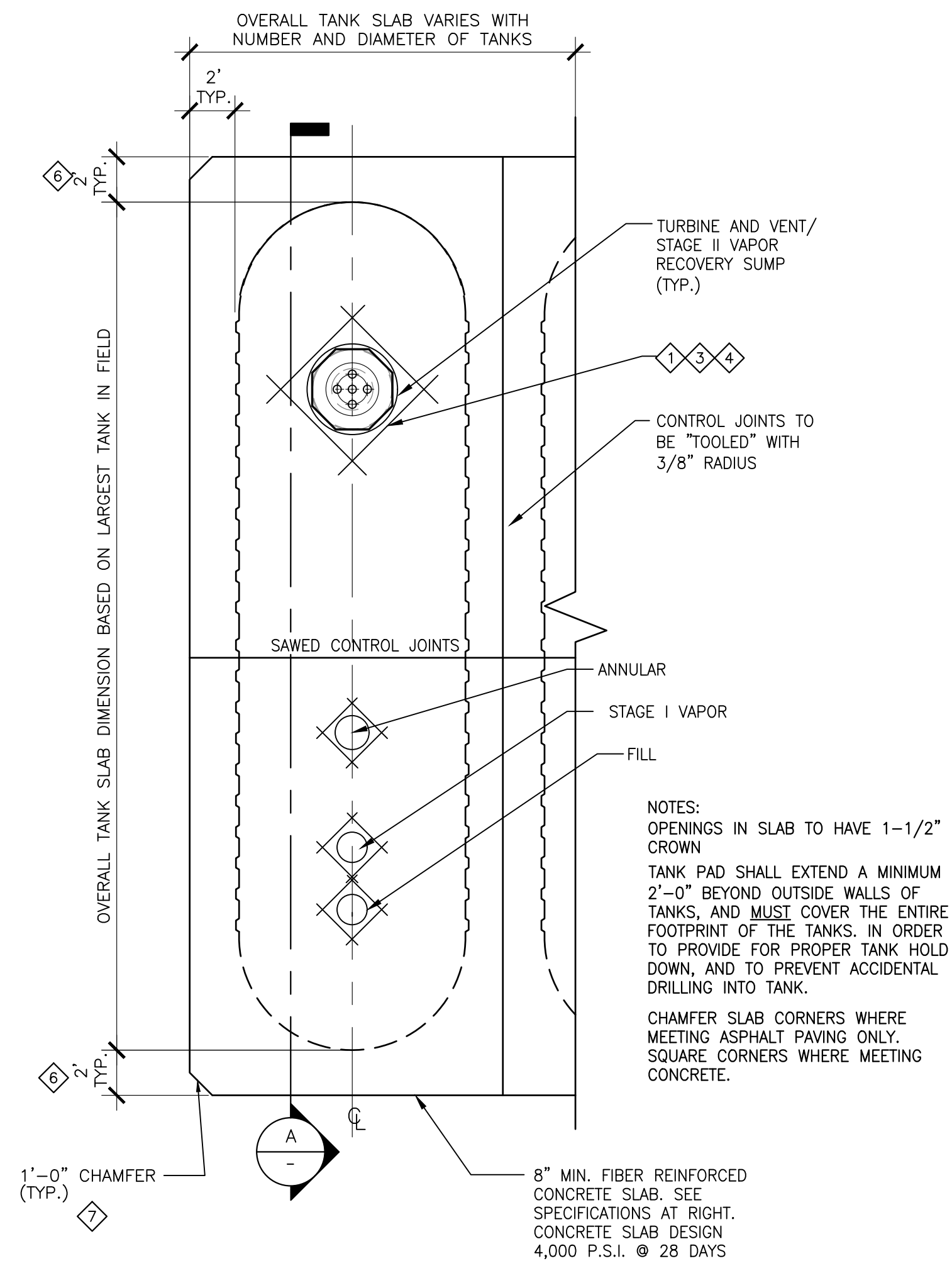
SHEET NO:

W

ME 140

IV.3.1.40

Method



Concrete Slab Specifications

- STANDARD:
1. CONCRETE SLAB OVER TANKS WITH A MINIMUM 8" THICK FIBER REINFORCEMENT TO BE USED. REINFORCE CONCRETE SLAB AROUND MANHOLES WITH (4) #4 REBAR, 60" IN LENGTH FOR THE LARGE MANHOLES AND 30" FOR SMALL MANHOLES PLACE REBAR 6" FROM SIDES OF BOX. SEE RECIPE BELOW.
 2. CONCRETE DRIVE SLAB AT CANOPY FUELING AREA WITH A MINIMUM 6" THICK FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.
 3. CONCRETE FORMLESS ISLAND WITH A 6" HEIGHT ABOVE FINISHED GRADE FIBER REINFORCED CONCRETE TO BE USED. SEE RECIPE BELOW.
- CONCRETE MIX RECIPE. PREMIX UNIFORMLY THROUGHOUT CONCRETE. REINFORCEMENT BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
- UNLESS OTHERWISE NOTED ON THESE DRAWINGS:
- a. CONCRETE - REGULAR WEIGHT HARD ROCK CONCRETE (150 LBS/CU FT)
 - b. CEMENT - TYPE I/II, SULFATE RESISTANT
 - c. AGGREGATES - ASTM C33, (MAXIMUM SIZE 3/4 INCHES)
 - d. 28 DAY CONCRETE STRENGTH (f'c):
 - 4,000 PSI - SLAB (DESIGN BASED ON 2,000 PSI NO SPECIAL INSPECTION REQUIRED)
 - e. SLUMP - 3" - 1" - 4" MAXIMUM AT POINT OF PLACEMENT
 - f. SHRINKAGE - 0.05% MAXIMUM
 - g. ENTRAINED AIR RANGE - 2% TO 4%

CONCRETE SHALL BE NORMAL WEIGHT WITH A MIX OF 1 : 2 1/2 : 3 1/2, WITH A MAXIMUM 7 1/2 GALLONS OF WATER PER SACK. ADD 3.0 LB MACRO (STRUCTURAL) FIBER PER CU. YD. REINFORCING CONCRETE.

MAINTAIN CONCRETE IN A MOIST CONDITION FOR AT LEAST 7 DAYS AFTER PLACEMENT.

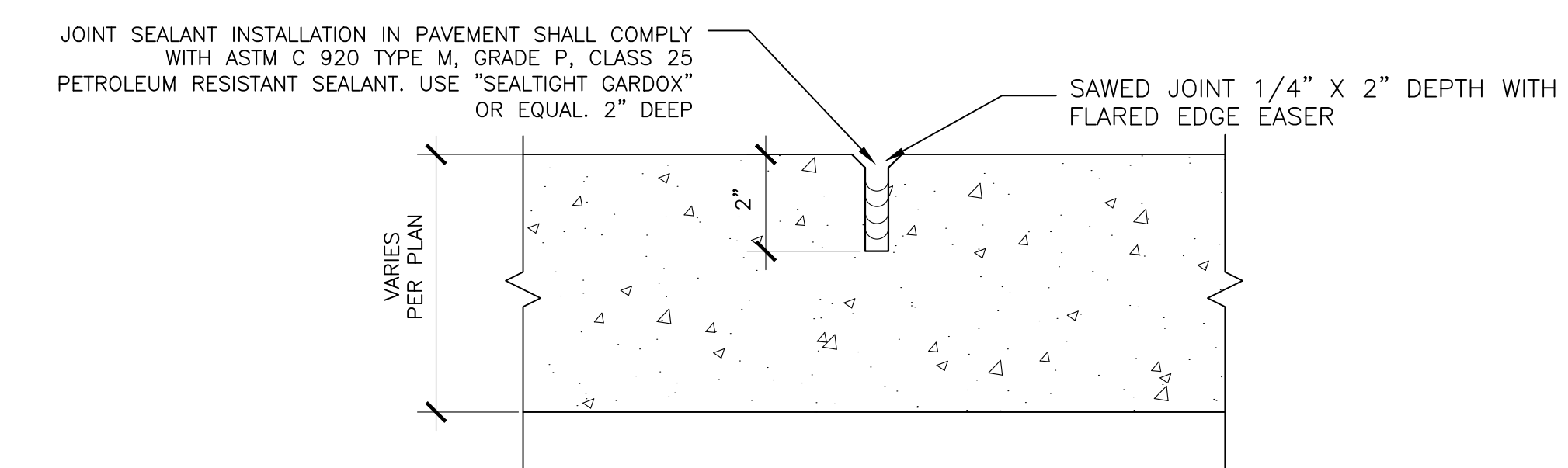
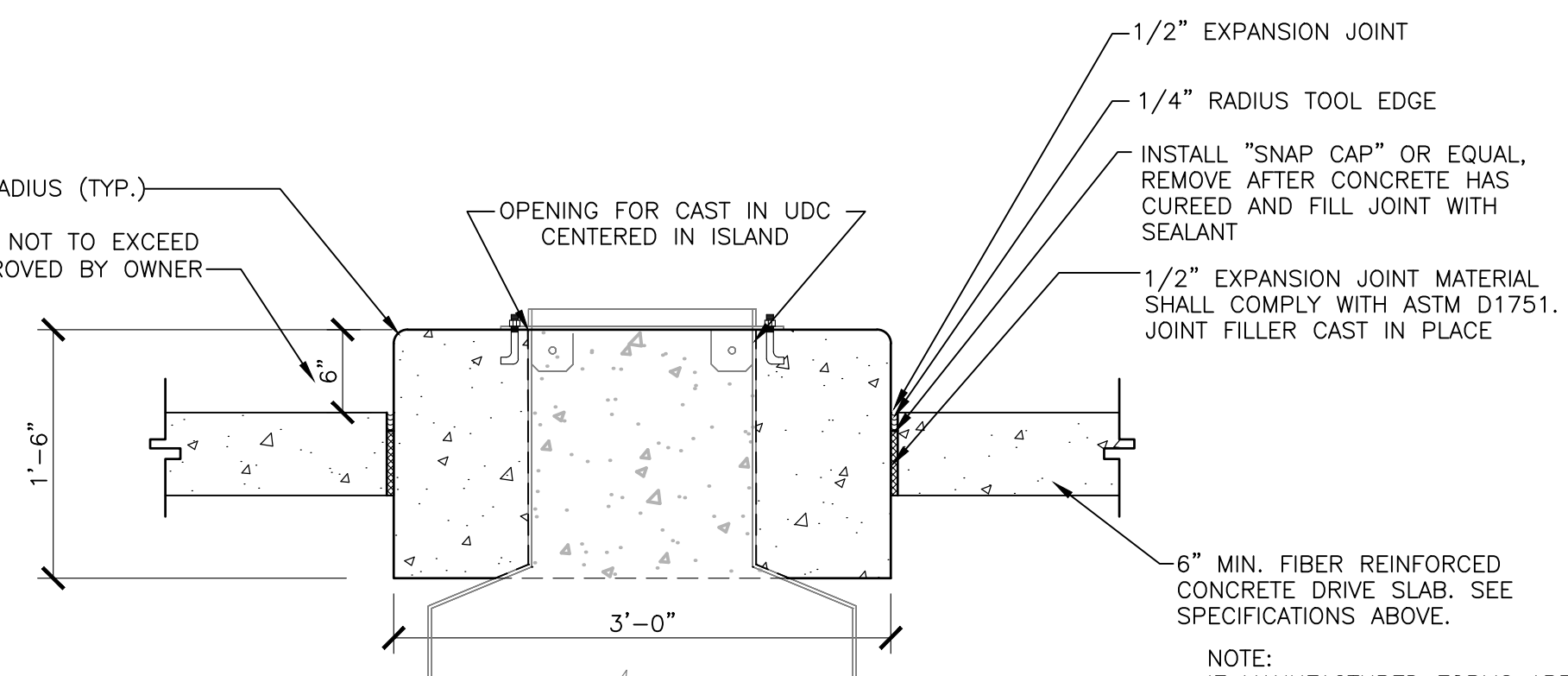
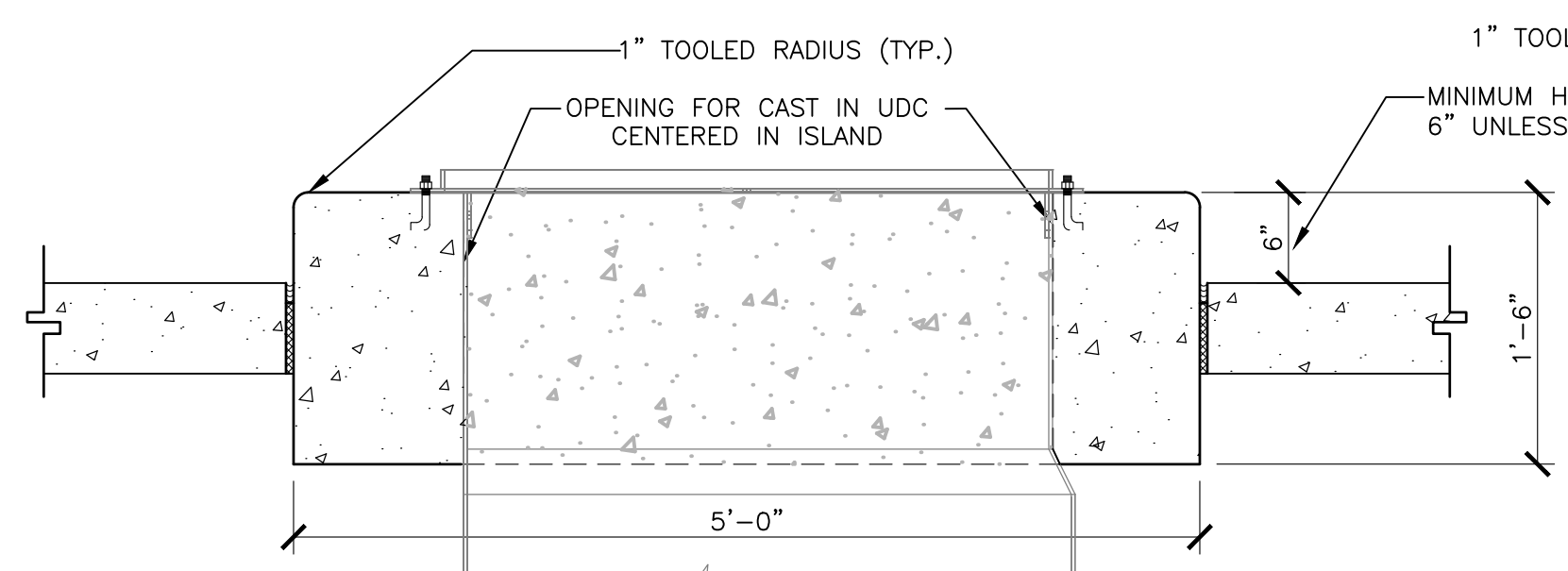
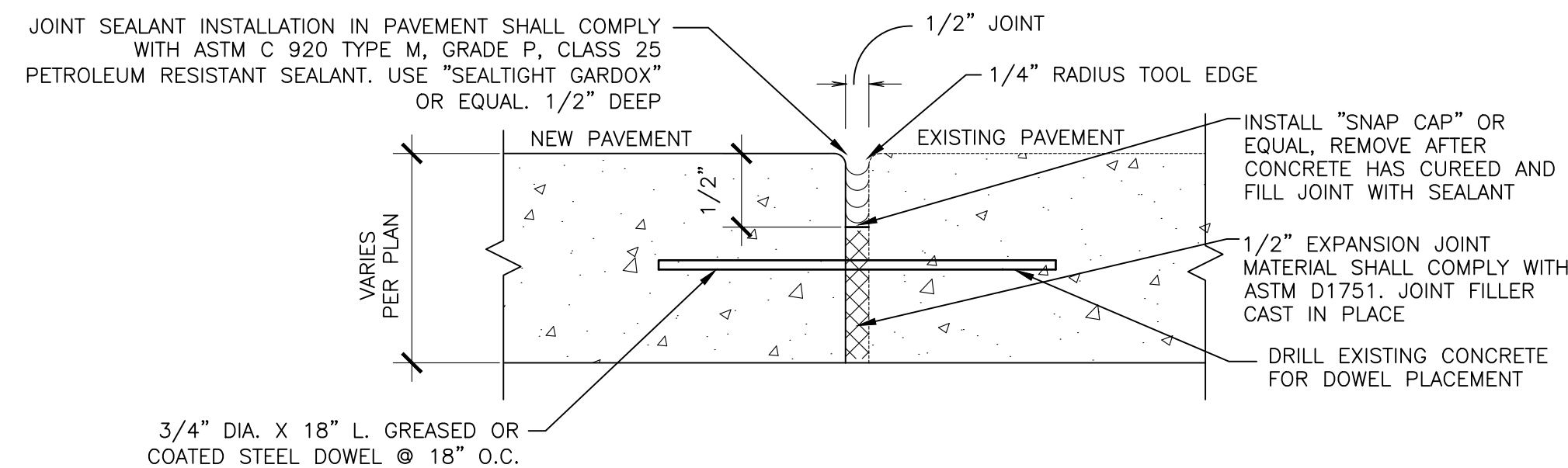
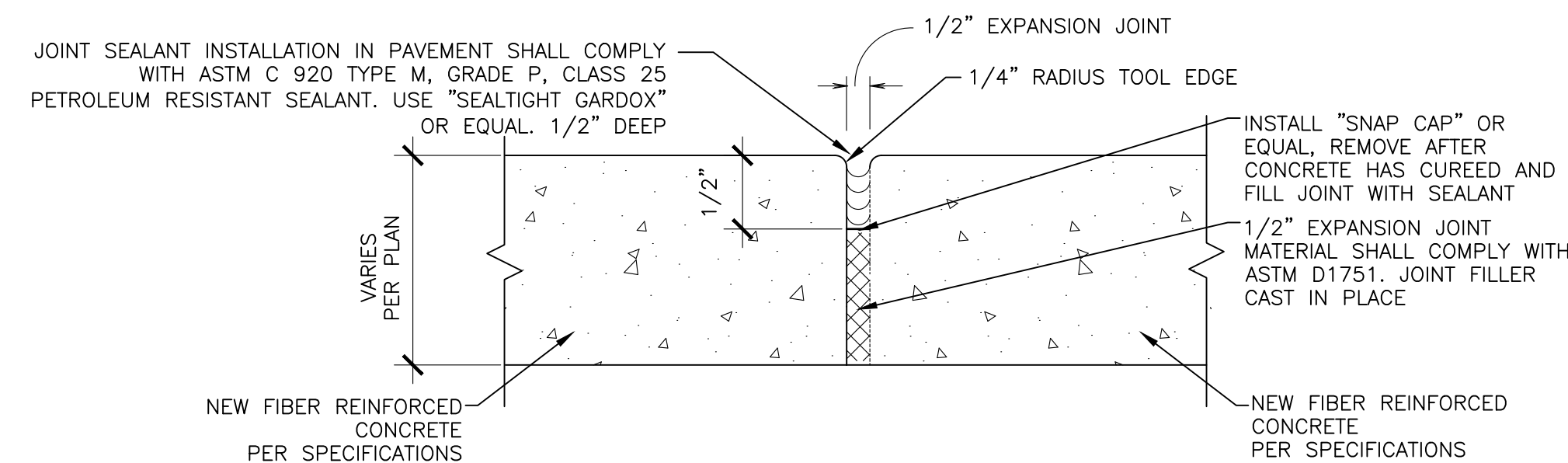
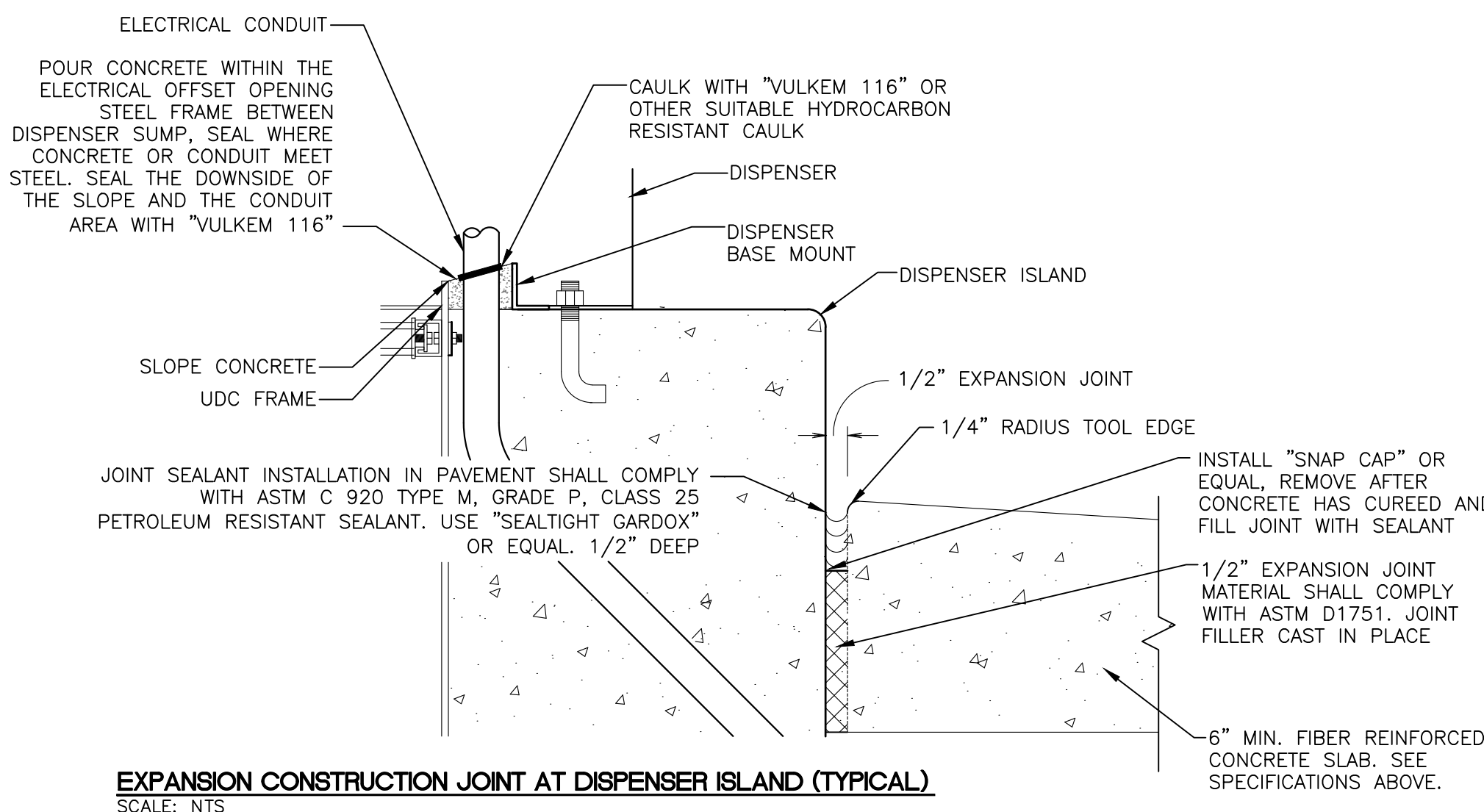
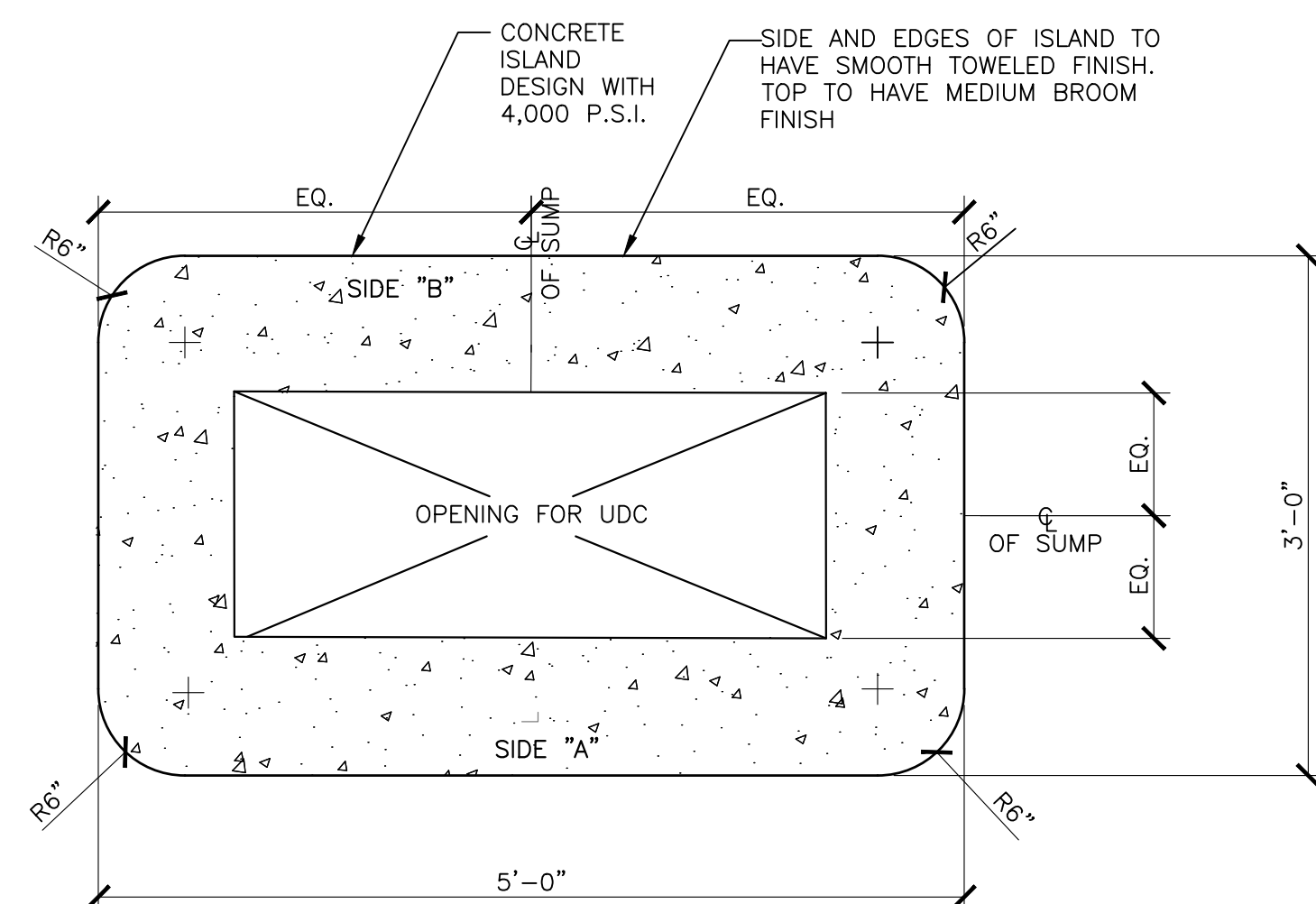
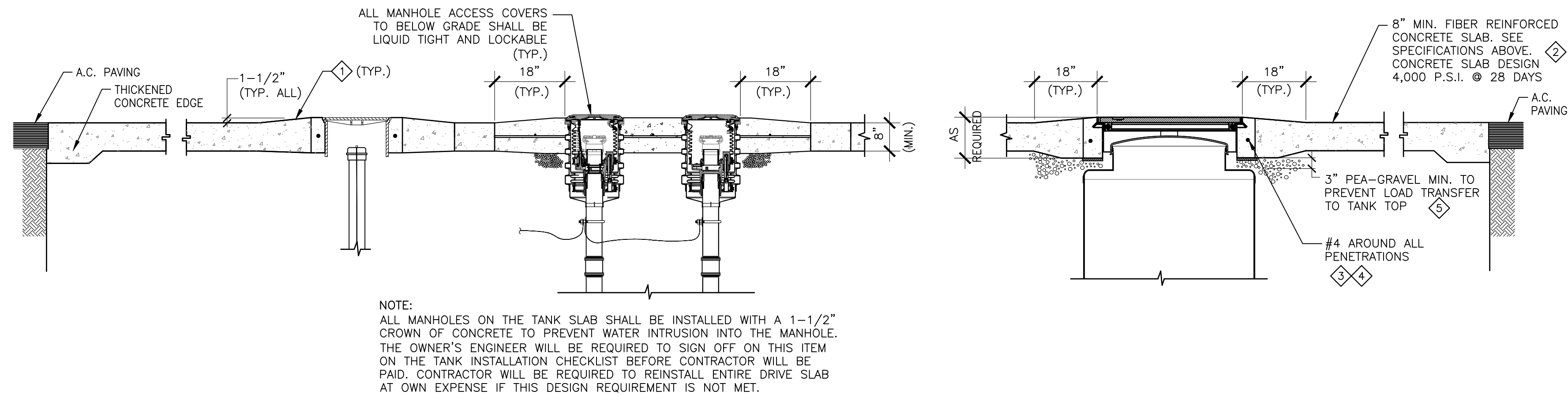
PLACE CONCRETE DIRECTLY FROM TRUCK INTO FORMS. DO NOT PUMP CONCRETE UNLESS SPECIAL INSPECTION, IN ACCORDANCE WITH CHAPTER 3 OF THE IBC, IS PROVIDED.

SUBMIT MIX DESIGNS, WITH STRENGTH AND SHRINKAGE TEST RESULTS, TO OWNER'S ENGINEER AT LEAST 7 DAYS BEFORE PLACING CONCRETE.

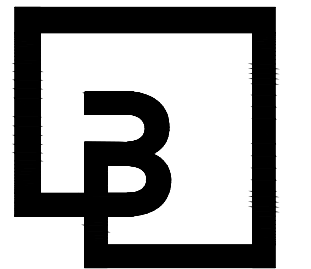
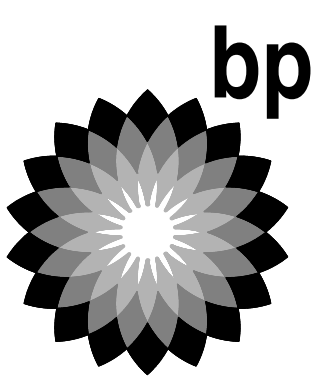
BEFORE PLACING CONCRETE, SECURE REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND OTHER INSERTS IN POSITION TO PREVENT MOVEMENT.

MATERIALS AND WORKMANSHIP SHALL CONFORM TO A.C.I. - 318 (SPECIFICATIONS OF THE DESIGN AND PLACEMENT OF CONCRETE).

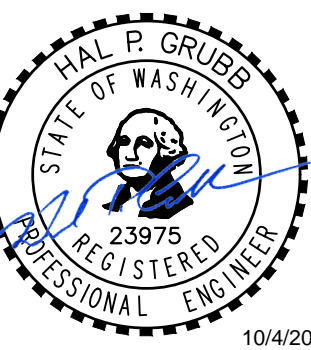
MANHOLE CROWNS:
ALL MANHOLE OPENINGS ON THE TANK SLAB SHALL BE INSTALLED WITH A 1-1/2" CROWN (1" RISE OVER 12" RUN) OF CONCRETE TO PREVENT WATER INTRUSION INTO THE MANHOLE. THE OWNER'S ENGINEER, THE BP PROJECT MANAGER WILL BE REQUIRED TO SIGN OFF ON THIS ITEM ON THE TANK INSTALLATION CHECKLIST.



NOTES: UST INSTALLATION	
1	SLOPE CONCRETE AWAY FROM ALL MANHOLES 1" RISE OVER 12" RUN.
2	FIBER REINFORCEMENT TO BE USED. PREMIX UNIFORMLY THROUGHOUT CONCRETE.
3	REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
4	REINFORCE CONCRETE SLAB AROUND MANHOLES WITH (4) #4 REBAR 60" IN LENGTH FOR LARGE MANHOLES 30" FOR SMALL MANHOLES. PLACE REBAR 6" FROM SIDES OF BOX.
5	USE PEA GRAVEL CONSISTING OF NATURALLY ROUNDED AGGREGATE, MIN 3/8" & MAX OF 3/4" IN SIZE, FREE OF CLAY, SLAG, CINDERS, OR DEBRIS. ALL SUBSTITUTES MUST BE APPROVED BY MANUFACTURER'S & OWNER'S FIELD REPRESENTATIVE.
6	TANK PAD MINIMUM 2'-0" OFF OUTSIDE WALLS OF TANKS, AND <u>MUST</u> COVER THE FOOTPRINT OF THE TANKS. REQUIRED TO PROVIDE FOR PROPER TANK HOLD DOWN, AND TO PREVENT ACCIDENTAL DRILLING INTO TANK.
7	CUT CORNER WHERE MEETING ASPHALT PAVING ONLY. SQUARE CORNERS WHERE MEETING CONCRETE.
8	SEE SITE SPECIFIC PLANS FOR ACTUAL TANK SIZES, PLACEMENT, AND ORIENTATION. FINAL SITE SPECIFIC TANK LAYOUTS SHALL BE APPROVED BY THE LOCAL DISTRIBUTION TERMINAL MANAGER OR HIS AGENT. FINAL LOCATION SIGN-OFF SHALL BE DOCUMENTED.



NO.	DATE	REVISION DESCRIPTION
1	10/04/23	PERMIT RELEASE
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DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

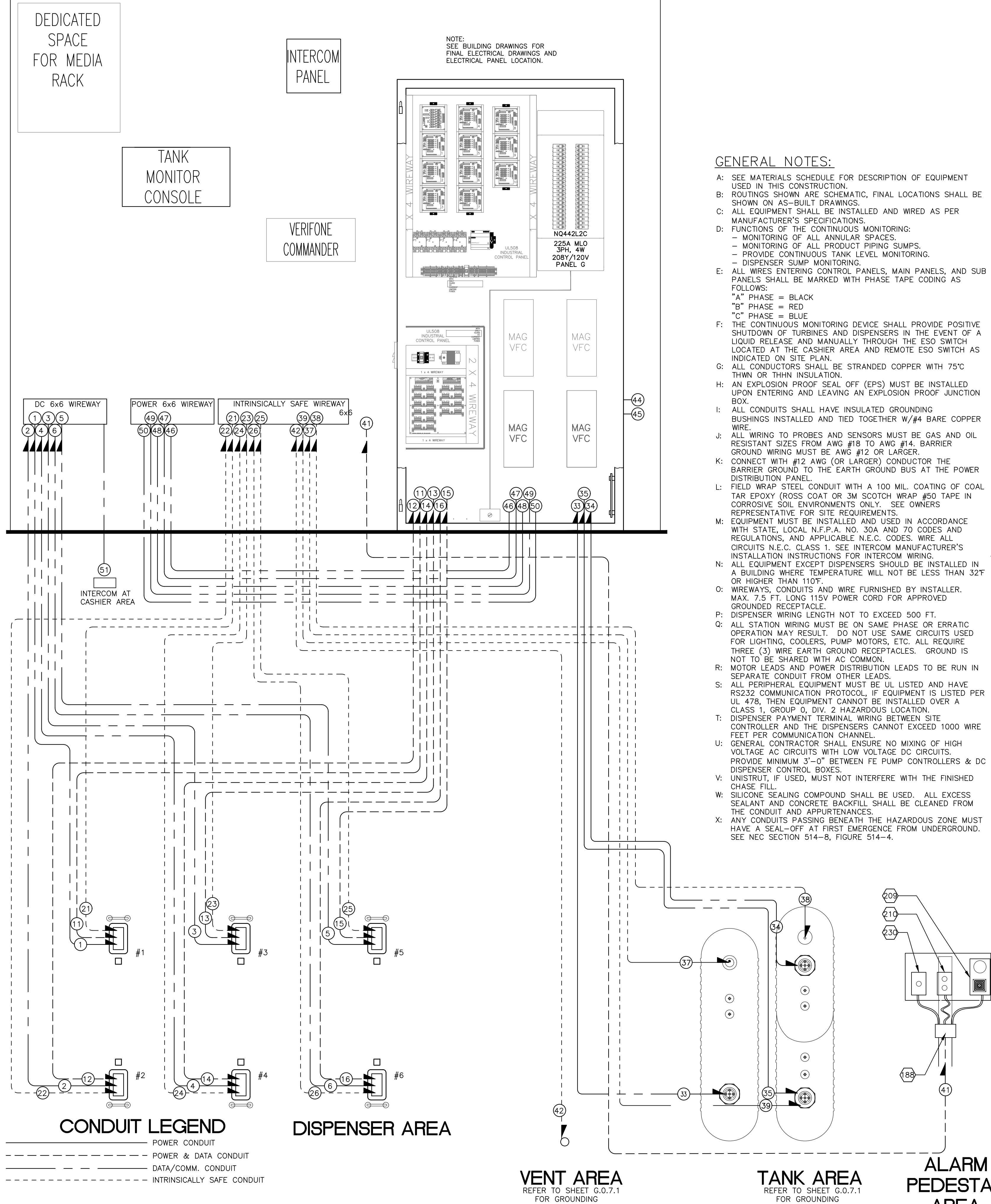
FACILITY #TBD

DESIGNED BY: NP/RF	ALLIANCE Z&DM:
CHECKED BY: OV	BP REPM:

DRAWN BY: NP/RF	ALLIANCE PM:
VERSION: V-15.0	PROJECT NO: 31730

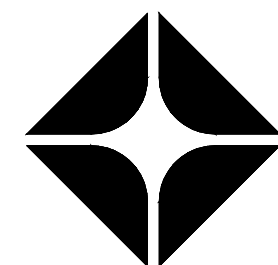
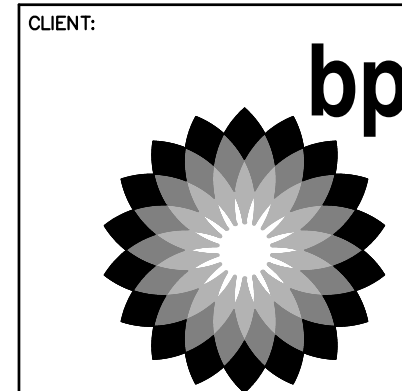
01/01/2023	21759
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M.5.1.41

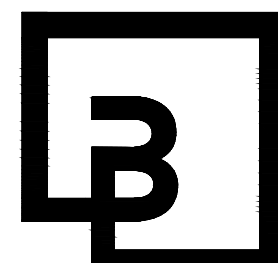


CONDUIT SCHEDULE					
CONDUIT NUMBER	CONDUIT SIZE & TYPE	CONDUIT FILL	CONDUIT START	CONDUIT END	CONDUIT DESCRIPTION
1	1" RGS	(2) BELDEN CABLE 88760* + CAT 5 BELDEN CABLE #7928A FOR MEDIA	DISPENSER #1	INTERCOM PANEL AT MANAGER'S OFFICE	INTERCOM (SPEAKER & CALL BUTTON) ON DISPENSER
2	1" RGS	(2) BELDEN CABLE 88760* + CAT 5 BELDEN CABLE #7928A FOR MEDIA	DISPENSER #2	INTERCOM PANEL AT MANAGER'S OFFICE	INTERCOM (SPEAKER & CALL BUTTON) ON DISPENSER
3	1" RGS	(2) BELDEN CABLE 88760* + CAT 5 BELDEN CABLE #7928A FOR MEDIA	DISPENSER #3	INTERCOM PANEL AT MANAGER'S OFFICE	INTERCOM (SPEAKER & CALL BUTTON) ON DISPENSER
4	1" RGS	(2) BELDEN CABLE 88760* + CAT 5 BELDEN CABLE #7928A FOR MEDIA	DISPENSER #4	INTERCOM PANEL AT MANAGER'S OFFICE	INTERCOM (SPEAKER & CALL BUTTON) ON DISPENSER
5	1" RGS	(2) BELDEN CABLE 88760* + CAT 5 BELDEN CABLE #7928A FOR MEDIA	DISPENSER #5	INTERCOM PANEL AT MANAGER'S OFFICE	INTERCOM (SPEAKER & CALL BUTTON) ON DISPENSER
6	1" RGS	(2) BELDEN CABLE 88760* + CAT 5 BELDEN CABLE #7928A FOR MEDIA	DISPENSER #6	INTERCOM PANEL AT MANAGER'S OFFICE	INTERCOM (SPEAKER & CALL BUTTON) ON DISPENSER
7	NOT USED				
8	NOT USED				
9	NOT USED				
10	NOT USED				
11	1" RGS	5 #12 THWN & 1 #12 GRD. (POWER) (2) BELDEN CABLE #88760* - (DATA & CRIND)	DISPENSER #1	EPC PANEL AT ELECTRICAL CLOSET	POWER & DATA FOR DISPENSER
12	1" RGS	5 #12 THWN & 1 #12 GRD. (POWER) (2) BELDEN CABLE #88760* - (DATA & CRIND)	DISPENSER #2	EPC PANEL AT ELECTRICAL CLOSET	POWER & DATA FOR DISPENSER
13	1" RGS	5 #12 THWN & 1 #12 GRD. (POWER) (2) BELDEN CABLE #88760* - (DATA & CRIND)	DISPENSER #3	EPC PANEL AT ELECTRICAL CLOSET	POWER & DATA FOR DISPENSER
14	1" RGS	5 #12 THWN & 1 #12 GRD. (POWER) (2) BELDEN CABLE #88760* - (DATA & CRIND)	DISPENSER #4	EPC PANEL AT ELECTRICAL CLOSET	POWER & DATA FOR DISPENSER
15	1" RGS	5 #12 THWN & 1 #12 GRD. (POWER) (2) BELDEN CABLE #88760* - (DATA & CRIND)	DISPENSER #5	EPC PANEL AT ELECTRICAL CLOSET	POWER & DATA FOR DISPENSER
16	1" RGS	5 #12 THWN & 1 #12 GRD. (POWER) (2) BELDEN CABLE #88760* - (DATA & CRIND)	DISPENSER #6	EPC PANEL AT ELECTRICAL CLOSET	POWER & DATA FOR DISPENSER
17	NOT USED				
18	NOT USED				
19	NOT USED				
20	NOT USED				
21	1" RGS	(1) BELDEN CABLE 88760*	DISPENSER #1	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	DISPENSER SUMP MONITORING
22	1" RGS	(1) BELDEN CABLE 88760*	DISPENSER #2	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	DISPENSER SUMP MONITORING
23	1" RGS	(1) BELDEN CABLE 88760*	DISPENSER #3	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	DISPENSER SUMP MONITORING
24	1" RGS	(1) BELDEN CABLE 88760*	DISPENSER #4	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	DISPENSER SUMP MONITORING
25	1" RGS	(1) BELDEN CABLE 88760*	DISPENSER #5	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	DISPENSER SUMP MONITORING
26	1" RGS	(1) BELDEN CABLE 88760*	DISPENSER #6	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	DISPENSER SUMP MONITORING
27	NOT USED				
28	NOT USED				
29	NOT USED				
30	NOT USED				
31	NOT USED				
32	NOT USED				
33	1" RGS	3 #10 THWN & 1 #10 GRD.	TANK AREA - TURBINE	EPC PANEL AT ELECTRICAL CLOSET	TURBINE POWER
34	1" RGS	3 #10 THWN & 1 #10 GRD.	TANK AREA - TURBINE	EPC PANEL AT ELECTRICAL CLOSET	TURBINE POWER
35	1" RGS	3 #10 THWN & 1 #10 GRD.	TANK AREA - TURBINE	EPC PANEL AT ELECTRICAL CLOSET	TURBINE POWER
36	NOT USED				
37	1" RGS	(4) BELDEN CABLE 88760*	TANK AREA - ANNULAR	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	TANK MONITORING (TYP.) (VARIES BASED ON PLLD REQUIREMENTS)
38	1" RGS	(4) BELDEN CABLE 88760*	TANK AREA - ANNULAR	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	TANK MONITORING (TYP.) (VARIES BASED ON PLLD REQUIREMENTS)
39	1" RGS	(3) BELDEN CABLE 88760*	TANK AREA - TURBINE	INTRINSICALLY SAFE WIREWAY AT MANAGER'S OFFICE	TANK MONITORING (TYP.) (VARIES BASED ON PLLD REQUIREMENTS)
40	NOT USED				
41	1" RGS	6 #12 THWN & 1 #12 GRD.	TANK AREA OVERFILL ALARM	EPC PANEL AT ELECTRICAL CLOSET	POWER FOR OVERFILL ALARM AND ESO
42	NOT USED				
43	NOT USED				
44	1" RGS	4 #12 THWN & 1 #12 GRD	EPC PANEL AT ELECTRICAL CLOSET	CASHIER AREA	EMERGENCY SHUT OFF SWITCH AND RESET SWITCH
45	1" RGS	2 #12 THWN & 1 #12 GRD	EPC PANEL AT ELECTRICAL CLOSET	EXTERIOR BUILDING WALL	EMERGENCY SHUT OFF SWITCH
46	1" RGS	(6) BELDEN CABLE #88760* - (DATA)	EPC PANEL AT ELECTRICAL CLOSET	WAYNE DATA DISTRIBUTION AT MANAGER'S OFFICE	DATA & CRIND WIRES FOR DISPENSER COMM.
47	1" RGS	(6) BELDEN CABLE #88760* - (DATA)	EPC PANEL AT ELECTRICAL CLOSET	WAYNE DATA DISTRIBUTION AT MANAGER'S OFFICE	DATA & CRIND WIRES FOR DISPENSER COMM.
48	1" RGS	(4) BELDEN CABLE #88760* - (DATA)	EPC PANEL AT ELECTRICAL CLOSET	WAYNE DATA DISTRIBUTION AT MANAGER'S OFFICE	DATA & CRIND WIRES FOR DISPENSER COMM.
49	2" RGS	28 #12 THWN & 2 #12 GRD	EPC PANEL AT ELECTRICAL CLOSET	VEEDER ROOT PANEL AT MANAGER'S OFFICE	CONTROL FOR OVERFILL ALARM; PLLD WIRES AND CONTROL FROM DM-EX MODULES
50	1" RGS	SPARE W/ PULL ROPE	EPC PANEL AT ELECTRICAL CLOSET	MANAGER'S OFFICE	FUTURE
51	2" RGS	(32) #18 TW TWISTED PAIR SHIELDED INDIVIDUALLY	MANAGER'S OFFICE	INTERCOM AT CASHIER AREA	INTERCOM (SPEAKER & CALL BUTTON)

* SUBSTITUTE ALTERNATE SPEC FOR WASHINGTON STATE AND WHERE REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION . BELDEN CABLE # 1032A



BP WEST COAST PRODUCTS, LLC

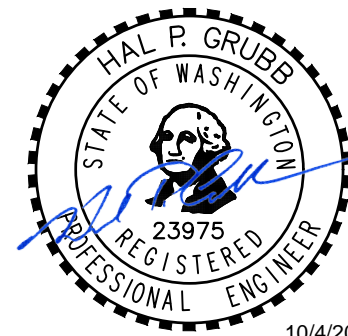


Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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1	10/04/23	PERMIT RELEASE
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SEAL:



10/4/2023

DEVELOPMENT INFORMATION:

ARCO NTI

3400 am/pm

FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN

@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF ALLIANCE ZADON:
CHECKED BY: OV BP REP:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730

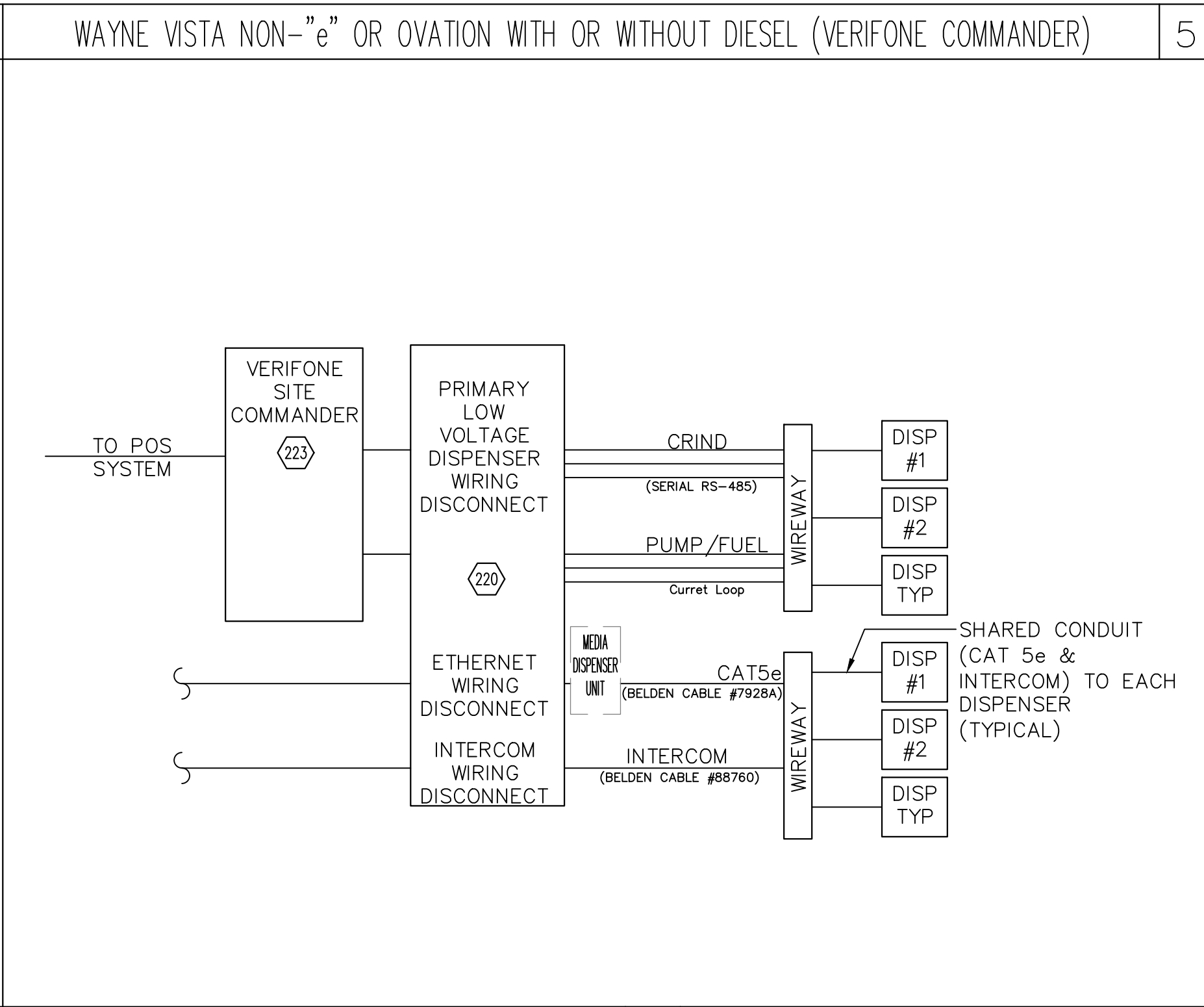
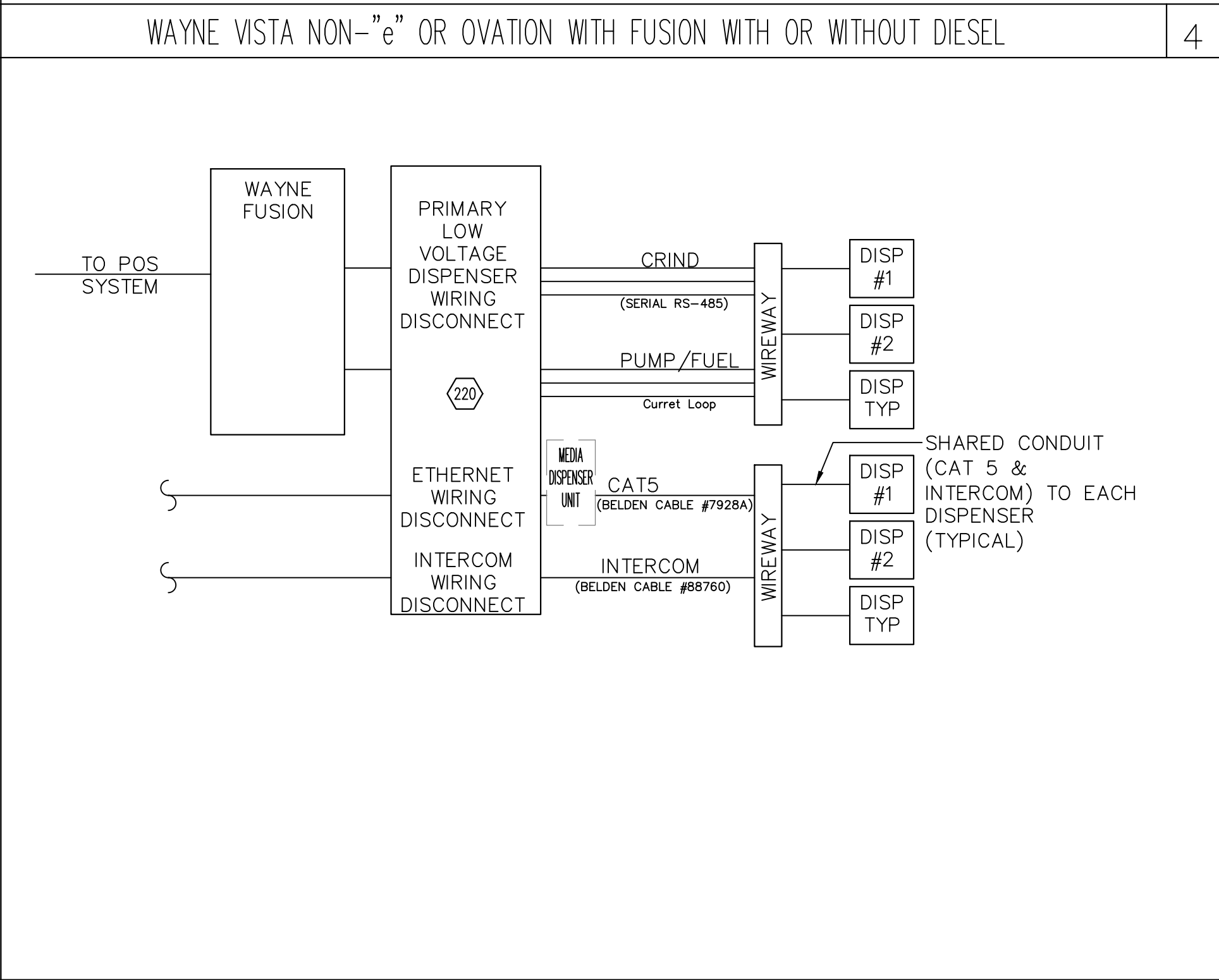
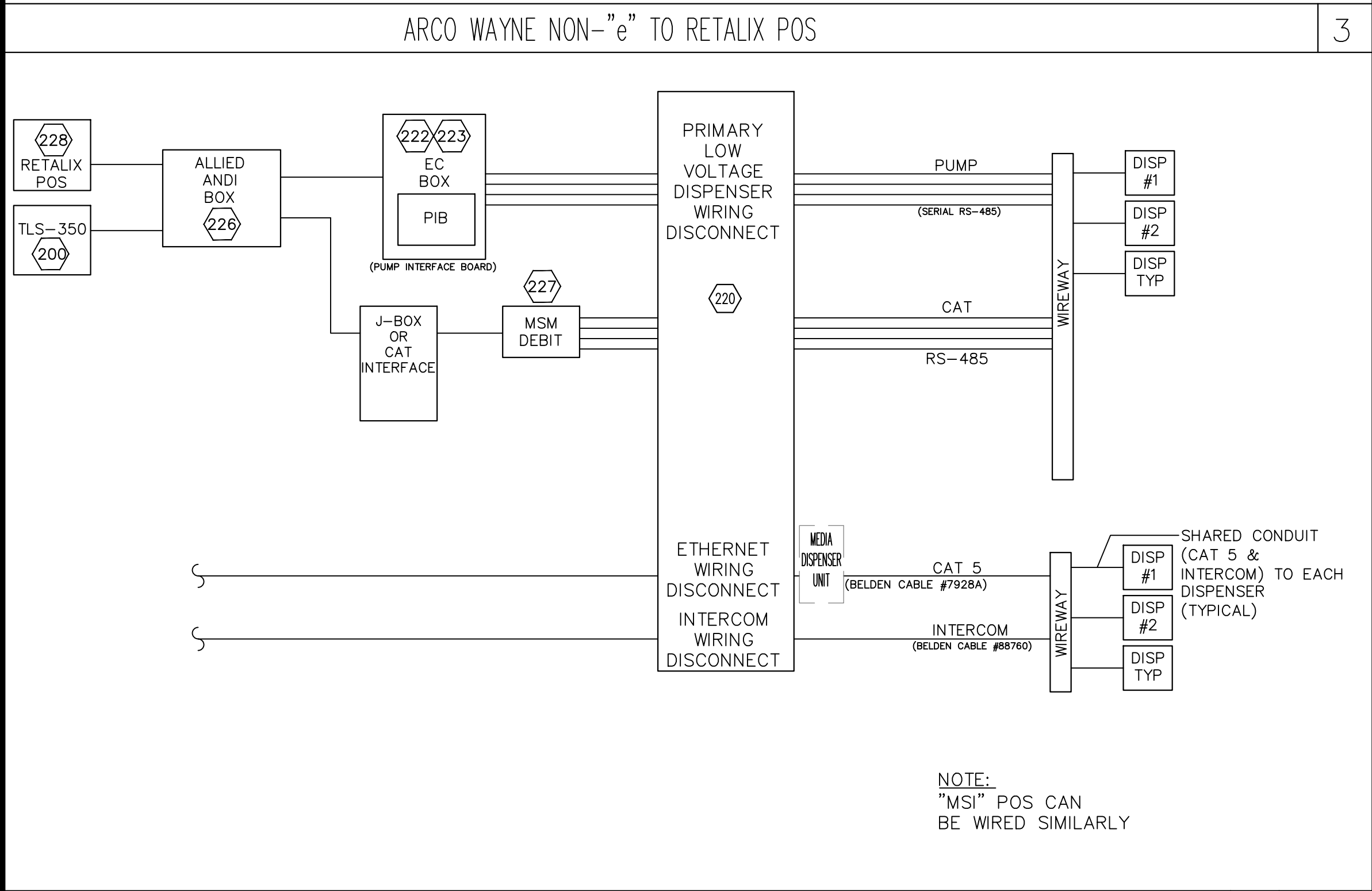
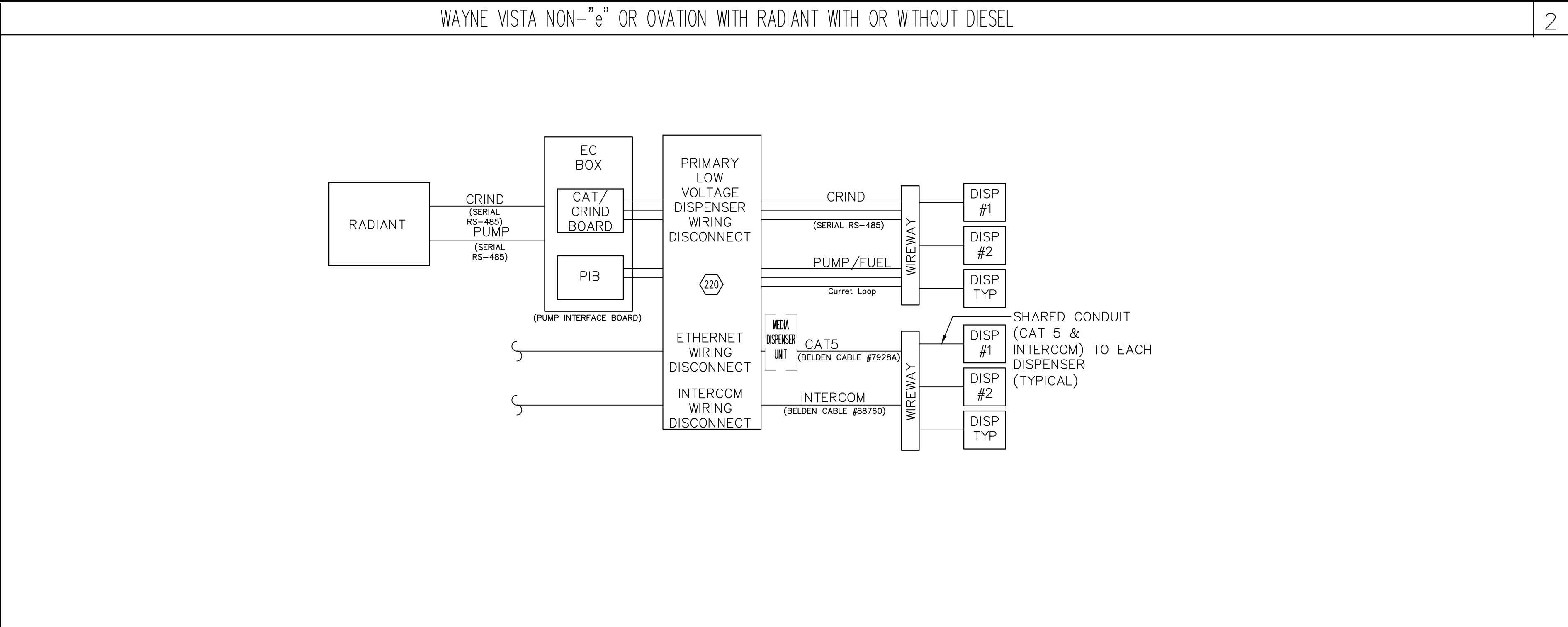
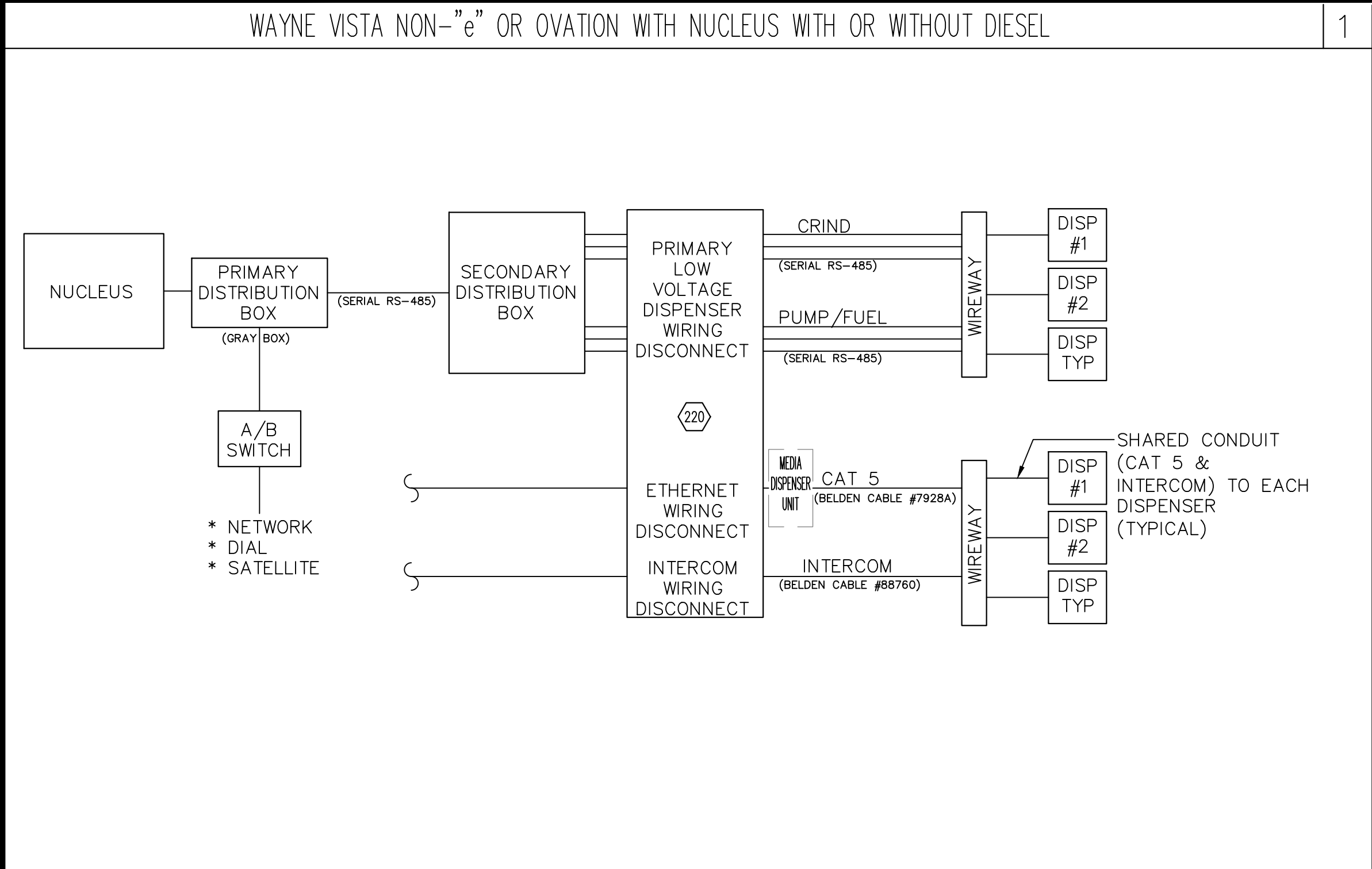
DRAWING TITLE:

**FUEL SYSTEM ELECTRICAL CONDUIT
POINT TO POINT PLAN
(SPLIT TANK VERSION)**

SHEET NO:

M.5.1.43

XX NOTE: INDICATES ITEMS FOUND ON MATERIALS LIST SHEET M.5.1.01 & M.5.1.02



LEAK DETECTION SYSTEM NOTES

Leak Detection System Notes

- WARNING:** MONITOR SENSOR & PROBE WIRING IS INTRINSICALLY SAFE WIRING AND MUST BE SEPARATE FROM ALL OTHER WIRING AND INSTALLED IN SEPARATE CONDUIT. MAXIMUM CABLE LENGTH BETWEEN MONITOR CONSOLE AND SENSORS IS 1,000 FEET.
- CAUTION:** 120 VAC WIRING MUST NOT BE CONNECTED TO LOW VOLTAGE CONNECTIONS. DAMAGE FROM MISWIRING IS NOT COVERED BY WARRANTY. INSTALLING CONTRACTOR TO BE HELD RESPONSIBLE.
- INSTALL TANK MONITOR SYSTEM PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- USE BELDEN CABLE # 88760 OR APPROVED EQUAL FOR ALL SENSOR AND PROBE WIRING.
- RUN RIGID METAL CONDUIT FOR PROBE AND SENSOR WIRING FROM THE MONITOR CONSOLE TO THE INTRINSICALLY SAFE WIREWAY. CONDUIT MUST ENTER THE MONITOR WHERE KNOCKOUTS ARE PROVIDED. NO OTHER CONDUIT ENTRY IS PERMITTED.
- SPECIAL NOTE:** IT IS THE INTENT OF THIS DESIGN THAT ANY DETECTED LEAK OR ANY FAILURE OF THE LEAK DETECTION SYSTEM, WILL RESULT IN THE INTERRUPTION OF ALL POWER TO THE PRODUCT PUMPS.
- CERTIFIED INSTALLERS- ALL MANUFACTURERS TRAINING REQUIREMENTS SHALL BE MET BY CONTRACTOR INSTALLING SENSORS/PROBES AND WIRING TO MONITORING SYSTEM.
- IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO NOTIFY THE VEEDER ROOT DISTRIBUTOR FOR STARTUP.
- SEE MANUFACTURERS WIRING DIAGRAM FOR SPECIFIC WIRING AND FURTHER INFORMATION.
- EACH TURBINE RELAY IS TO BE WIRED INTO THE MONITOR CONTROL SO THAT AN ACTIVATION OF TURBINE SIDE SUMP SENSOR OR ANNULAR SPACE SENSOR OR LLD WILL SHUT DOWN THE TURBINE FOR THAT TANK.

CAT 5 CABLE INSTALLATION GUIDE

PURPOSE	TYPE OF WIRE	MIN. SEPARATION
POWER SUPPLY	OPEN WIRING LESS THAN 300 VOLTS WIRE IN CONDUIT OR ARMORED OR NON-METALLIC SHEATH CABLE/POWER GROUND WIRES	2 INCHES NONE
RADIO & TELEVISION	ANTENNA LEAD & GROUND WIRES WITHOUT GROUNDED SHIELD	4 INCHES
SIGNAL & CONTROL WIRE	OPEN WIRING NOT OVER 300 VOLTS	NONE
CATV CABLES	COMMUNITY TELEVISION SYSTEMS COAXIAL CABLES WITH GROUNDED SHIELD	NONE
TELEPHONE SERVICE DROP WIRE	AERIAL OR BURIED	2 INCHES
SIGN	NEON SIGNS AND ASSOCIATED WIRING FROM TRANSFORMER	6 INCHES
FLUORESCENT LIGHTING	FLUORESCENT LIGHTING WIRE	5 INCHES
LIGHTNING SYSTEM	LIGHTNING RODS AND WIRES	6 FEET

NOTE: INDICATES ITEMS FOUND ON MATERIALS LIST SHEET M.5.1.01 & M.5.1.02

1. EXCESSIVE FORCE SHOULD NOT BE USED TO PULL IN NEW CABLE. PULL FORCE SHOULD NOT EXCEED 25 LBS.

2. CABLE SHALL NOT BE KINKED, KNOTTED, OR OTHERWISE DEFORMED DURING INSTALLATION.

3. PROPER CABLE SUPPORT HARDWARE SUCH AS J-HOOKS SHALL BE USED TO PREVENT RIPPING OR FRAYING OF CABLE. WHERE USED, STAPLES SHALL BE NON-METALLIC PLASTIC. STAPLE SHOULD BE LOOSE ENOUGH SUCH THAT CABLE JACKET IS NOT CRIMPED.

4. CABLE BUNDLES MAY BE SECURED WITH LOOSE FITTING WIRE TIE OR VELCRO TIE WRAPS. CABLES SHALL NOT BE OVER TIGHTENED SUCH THAT CRUSH STRESS IS EVIDENT.

5. CABLE SHALL BE ROUTED TO PERMIT SWEEPING BENDS, NOT RIGHT ANGLES OR SHARP BENDS. CABLE RUNS SHALL BE INDIVIDUALLY SUPPORTED.

6. A MINIMUM OF CABLE JACKET SHALL BE REMOVED WHEN TERMINATING. CABLE JACKET SHALL EXTEND AS CLOSE AS PRACTICAL TO THE TERMINATION POINT, LEAVING NO MORE THAN 3/4 INCH OF WIRE EXPOSED.

7. MAINTAIN TWISTED CONFIGURATION OF WIRE PAIRS TO WITHIN 1/2 INCH OF THE TERMINATION POINT.

8. WIRES SHALL NOT BE SPLICED. DAMAGED CABLE SHALL BE REPLACED, NOT REPAIRED.

9. LEAVE APPROXIMATELY 18 INCHES OF SPARE WIRE AT OUTLET AND CONNECTION POINT.

10. ENSURE ADEQUATE SEPARATION WHEN RUNNING CAT 5 CABLE PARALLEL TO POWER WIRING. CABLE SHALL NOT BE ROUTED THROUGH SAME BORE HOLES AS POWER WIRING. WHERE POSSIBLE CAT 5 CABLES SHOULD CROSS POWER WIRES AT 90 DEGREE ANGLES. MAINTAIN SEPARATION BETWEEN CABLE AND OTHER WIRING AS FOLLOWS:

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bp

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SEAL:

HAL P. GRUBB
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
10/04/2023

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF ALLIANCE ZADNE:
CHECKED BY: OV BP REP:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730
DRAWING TITLE:
WAYNE DISPENSER SCHEMATICS
LEAK DETECTION AND
CAT 5 NOTES

SHEET NO:

M.5.1.44

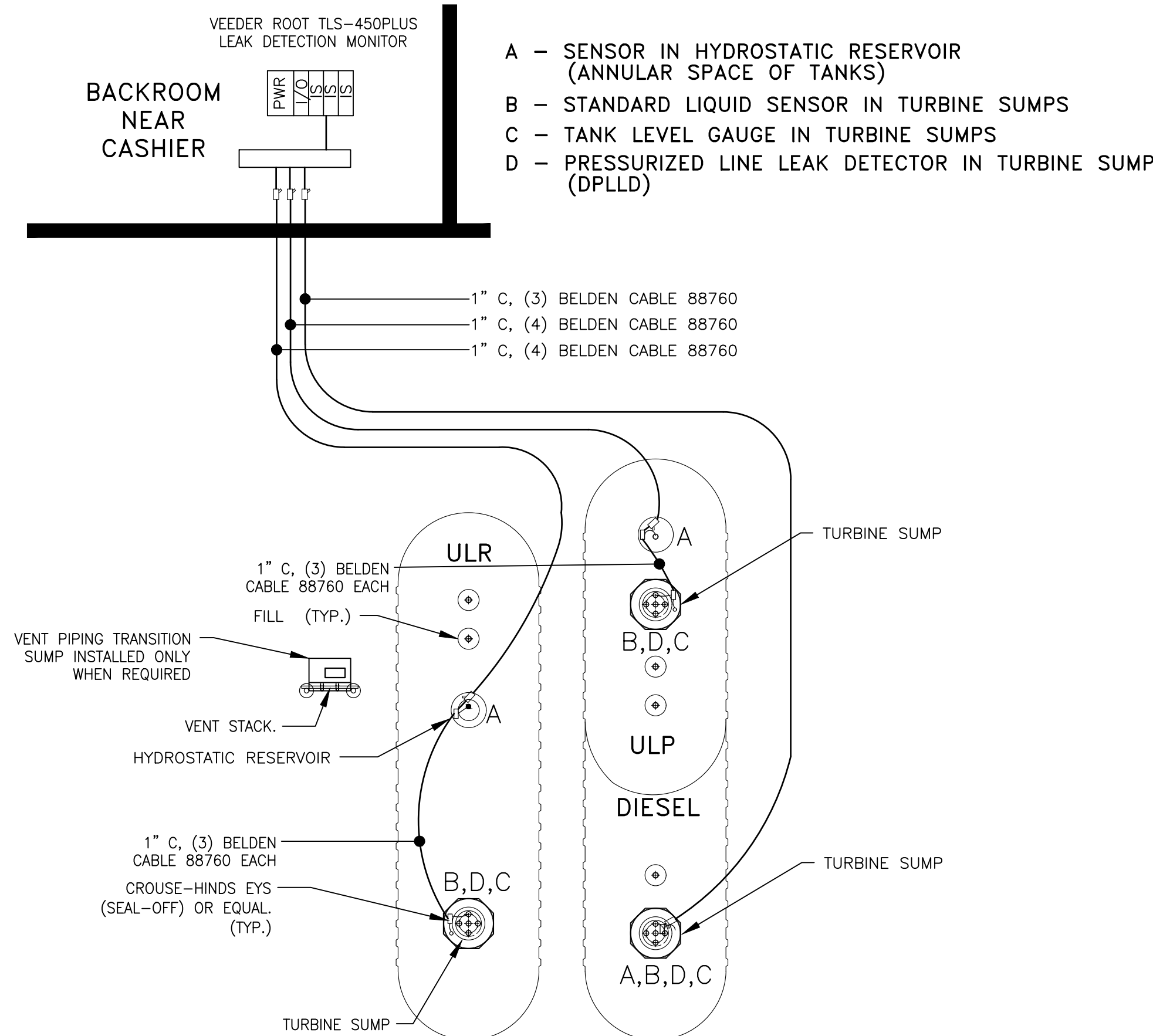
THIS DRAWING DESCRIBES THE INTRINSICALLY SAFE EQUIPMENT AND ASSOCIATED APPARATUS THAT TOGETHER FORM AN INTRINSICALLY SAFE SYSTEM.

TLS-450PLUS CONSOLE



INTRINSICALLY-SAFE AREA

Module Configuration

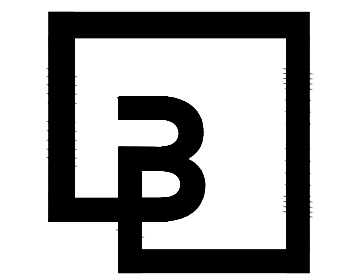


Tank Monitoring Conduit Schematic

SCALE: N.T.S.

NOTES:

- CLIENT:**



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DEVELOPMENT INFORMATION:	
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ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY: NP/RF	ALLIANCE Z&DM:
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DRAWN BY:	NP/BE	ALLIANCE PM:
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VERSION: V-15.0 01/01/2023	PROJECT NO: 2173
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DRAWING TITLE:	
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**VEEDER ROOT 450 AND FE PETRO
INTERFACE FIELD WIRING DIAGRAM
(SINGLE MASTER)
(SPLIT TANK VERSION)**

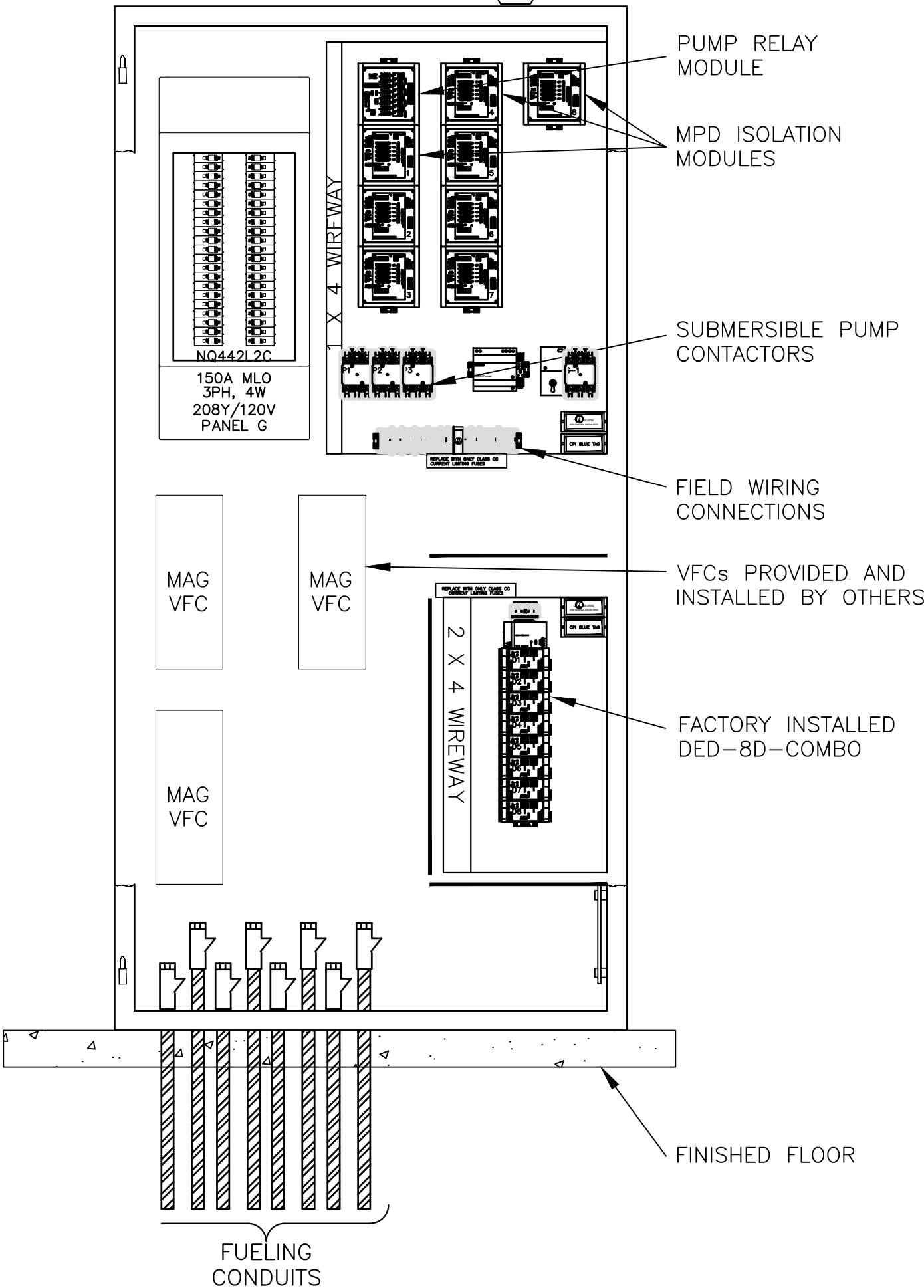
SHEET NO:

M.5.1.45

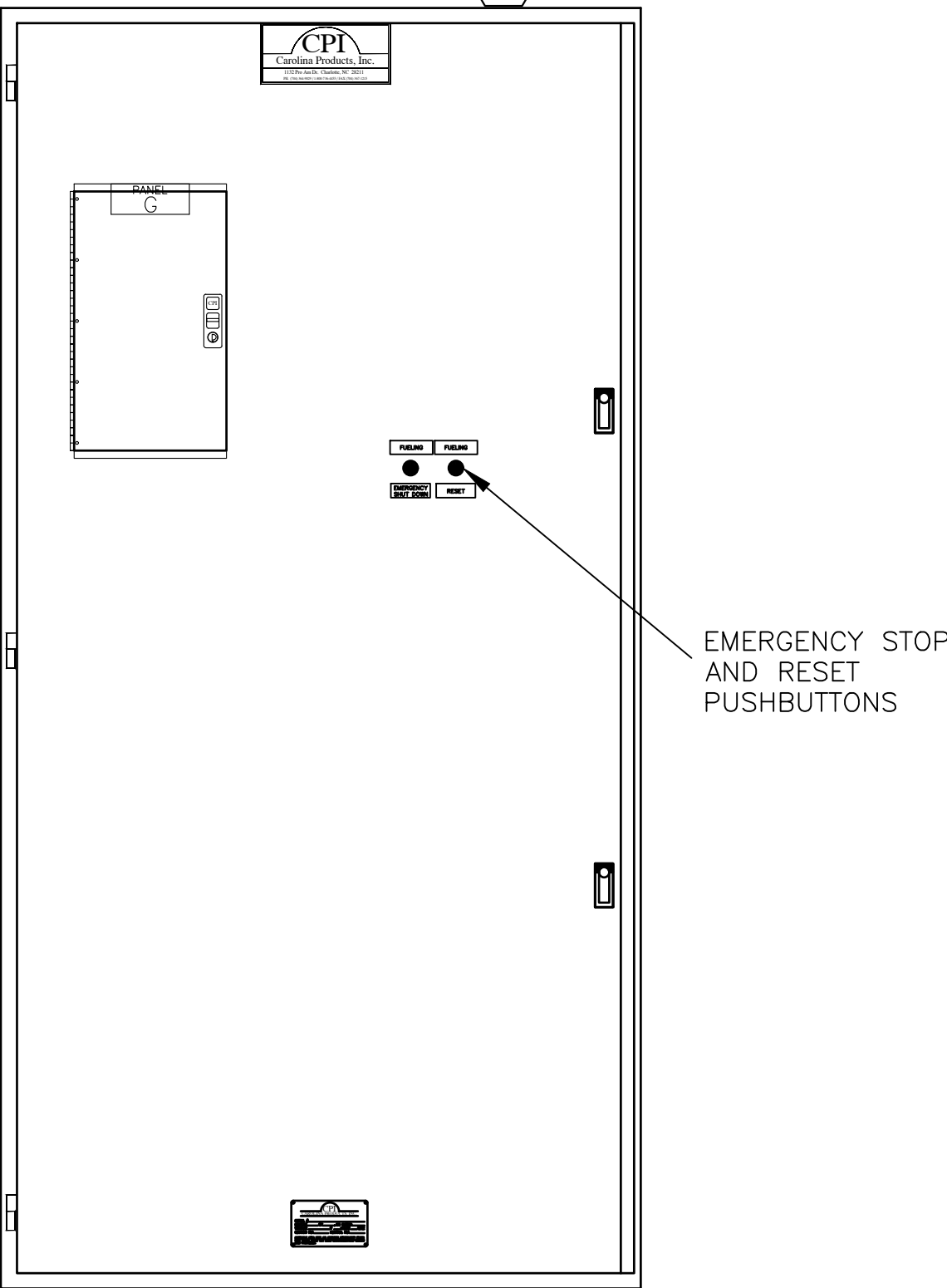
XX NOTE: INDICATES ITEMS FOUND ON MATERIALS LIST SHEET M.5.1.01 & M.5.1.02

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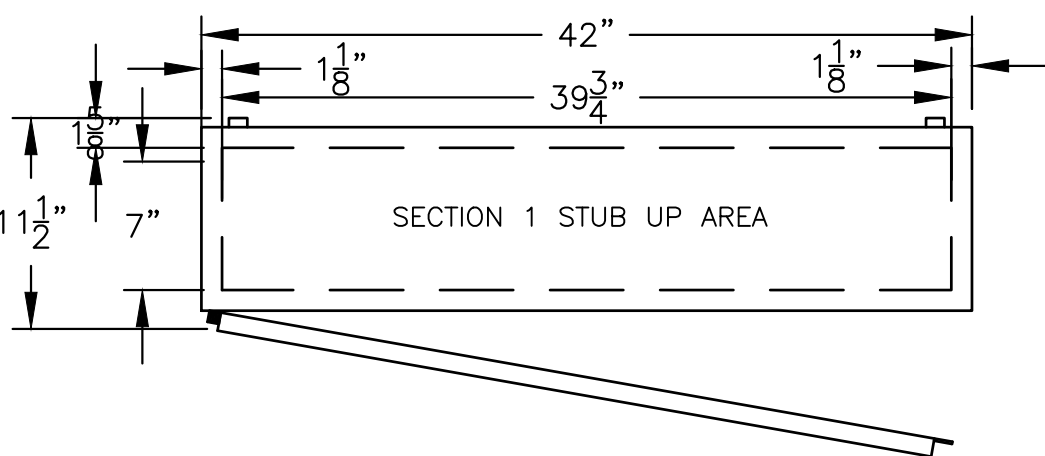
INTERIOR VIEW
SECTION 3 220



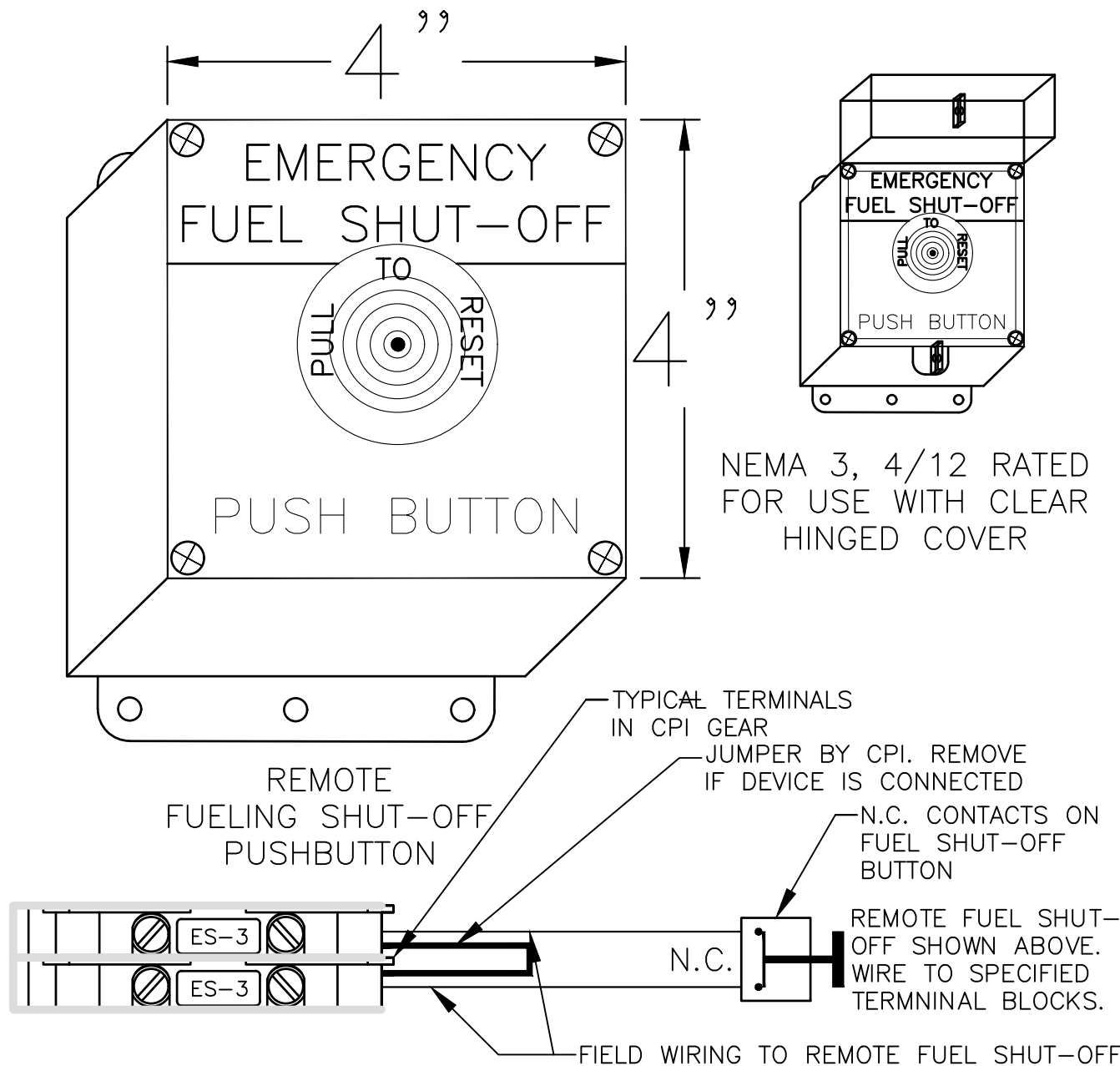
EXTERIOR VIEW
SECTION 3 220



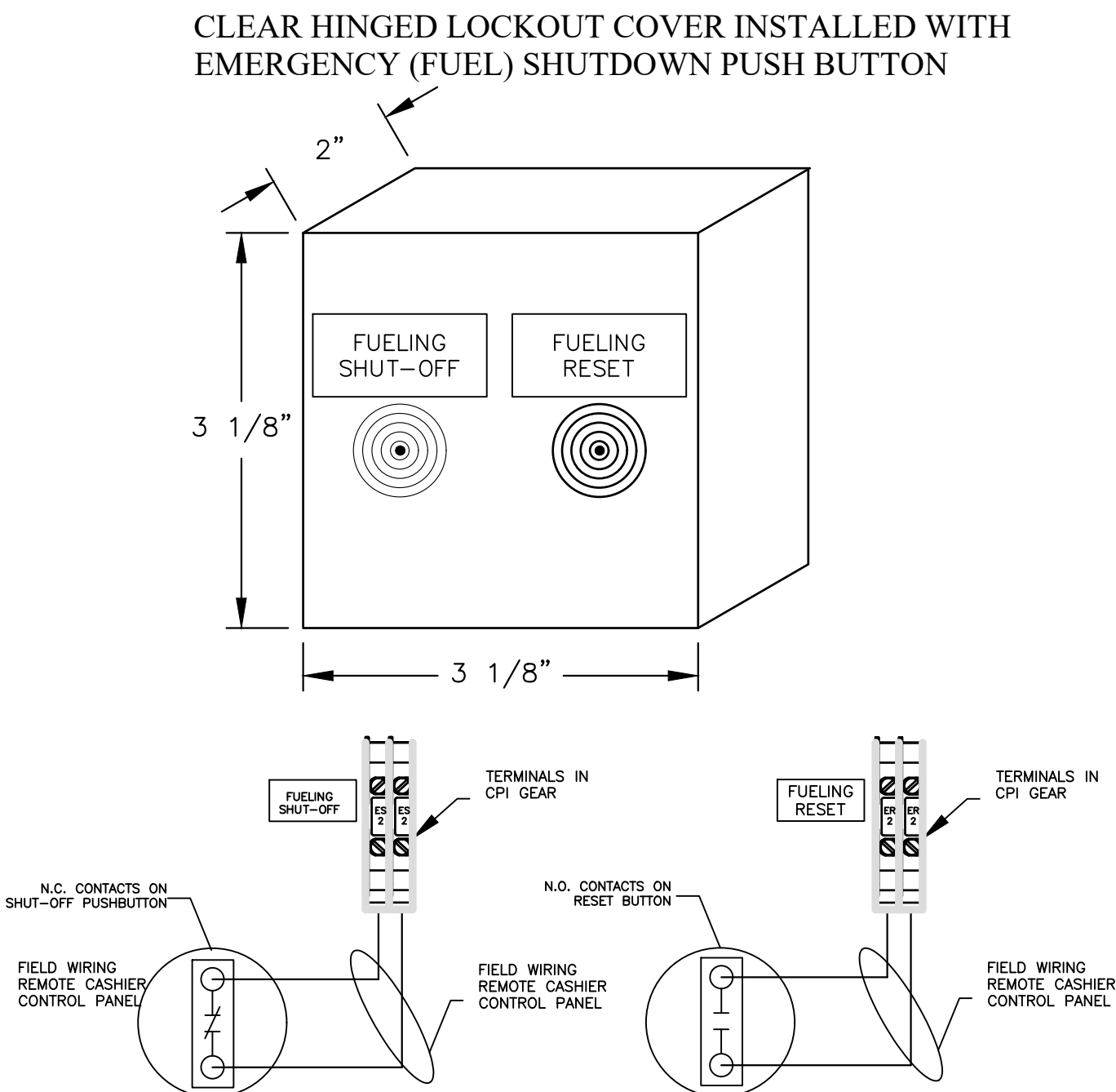
STUB
UP
DETAIL



NOTE:
SEE BUILDING DRAWINGS FOR
FINAL ELECTRICAL DRAWINGS AND
ELECTRICAL PANEL LOCATION.
CONTACT:
BRYAN STRYKER
CAROLINA PRODUCTS INCORPORATED
(704) 441-4048
BRYANS@CPIPANELS.COM

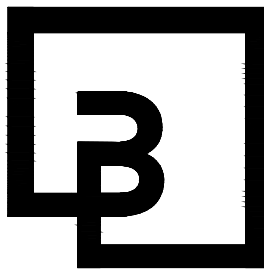


1.1 FUELING EMERGENCY STOP PUSHBUTTON
INSTALLATION DETAILS



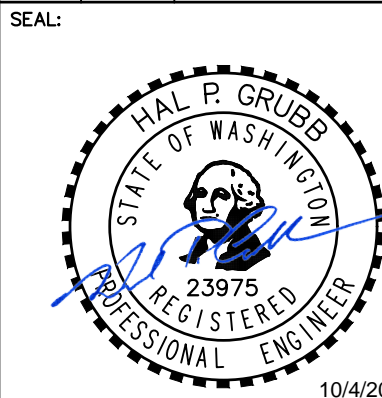
1.2 CASHIER CONTROL PANEL
INSTALLATION DETAILS

XI NOTE: INDICATES ITEMS FOUND
ON MATERIALS LIST SHEET
M.5.1.01 & M.5.1.02



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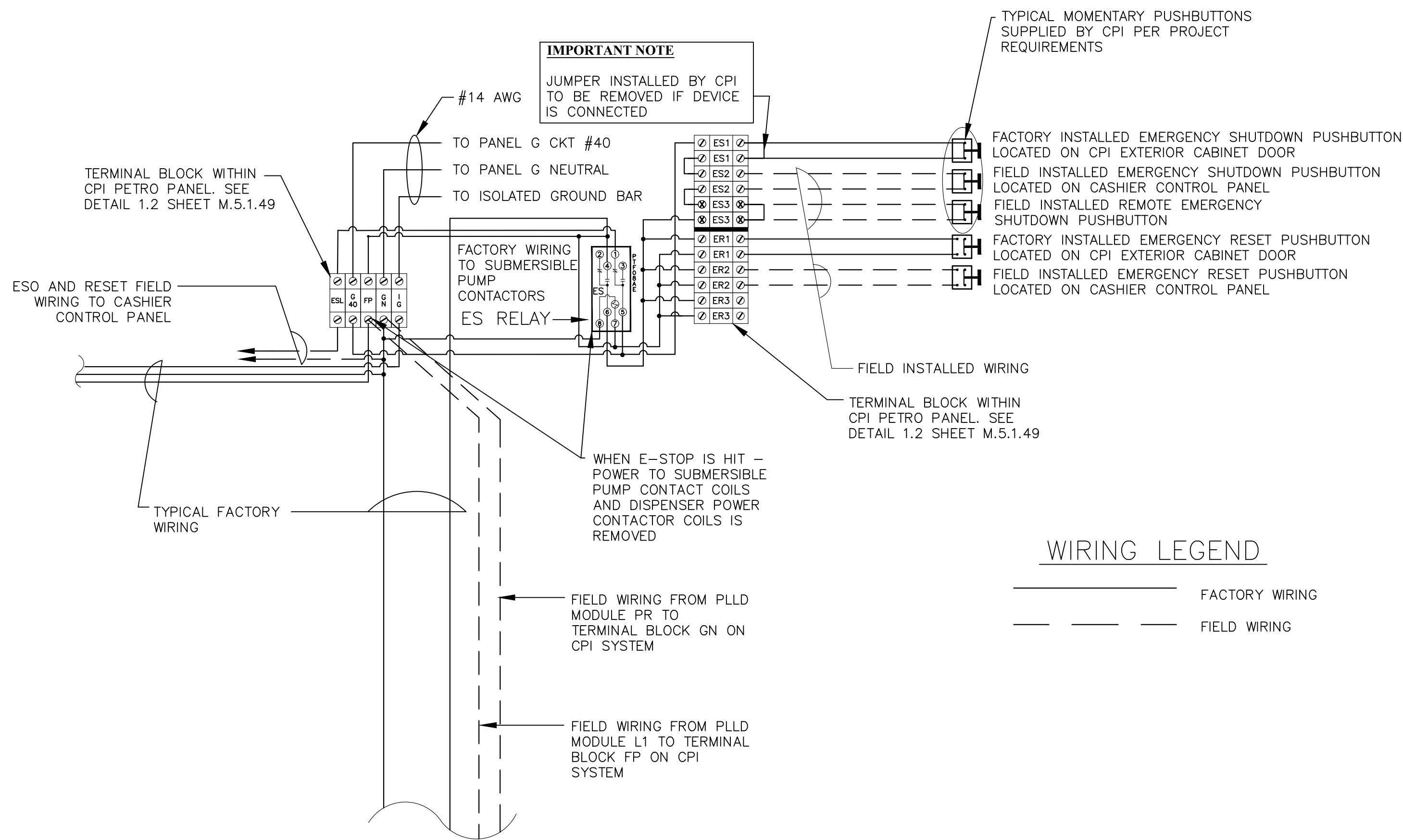
SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD
DESIGNED BY: NP/RF ALLIANCE ZADNE:
CHECKED BY: OV BP REPM:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730
DRAWING TITLE:

ELECTRICAL UNITIZED FUELING
MANAGER CABINET ELEVATIONS
AND DETAILS

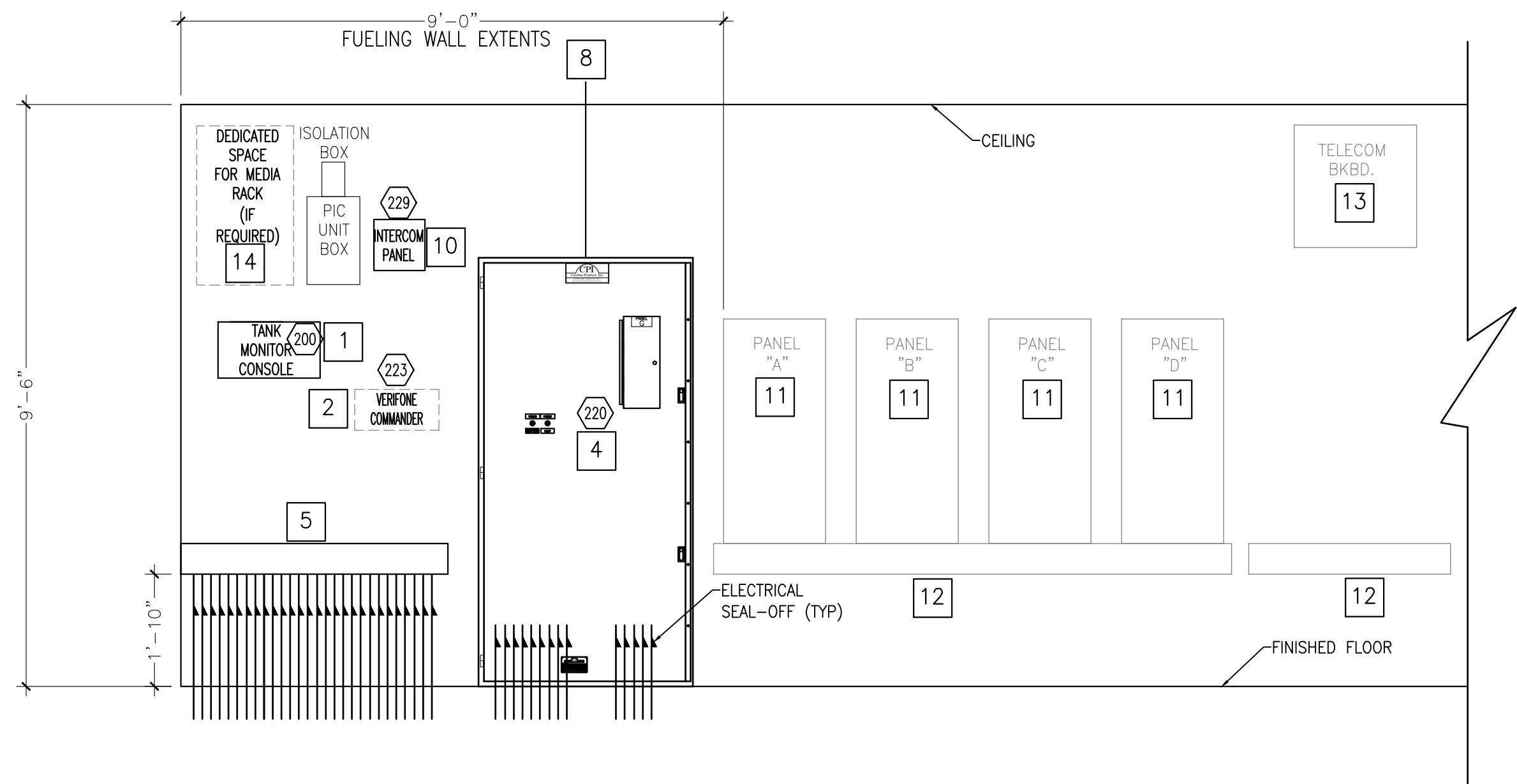
SHEET NO:

M.5.1.47



F: EMERGENCY STOP WIRING SCHEMATIC DETAIL

NOT TO SCALE:



G: TYPICAL BACKROOM ELEVATION IN C-STORE

NOT TO SCALE:

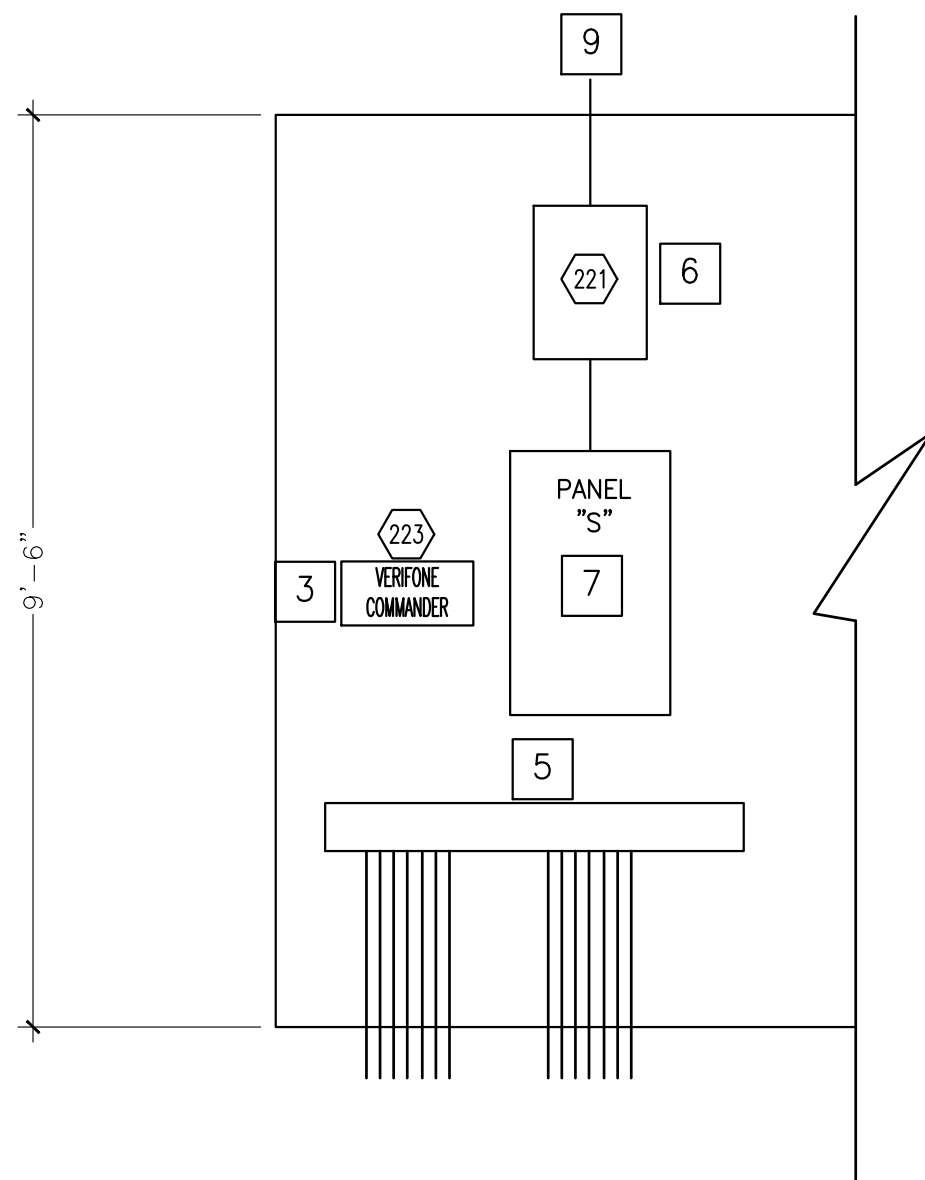
- 1 TANK/DISPENSER MONITORING CONSOLE
- 2 VERIFONE SITE COMMANDER UNIT (OPTIONAL LOCATION)
- 3 VERIFONE SITE COMMANDER UNIT (PREFERRED LOCATION)
- 4 FUELING DISPENSER MANAGER CABINET (42"Wx84"H - FLOOR MOUNTED):
1) FUELING ELECTRICAL PANEL "G"
2) DISPENSER RELAYS/MAINTENANCE SWITCH
3) DISPENSER DATA/GRIND/INTERCOM/ETHERNET DISCONNECT
4) TURBINE CONTROLS AND VFC UNITS
5) EMERGENCY SHUT-OFF SYSTEM
- 5 6X6 WIREWAY WITH DIVIDERS
- 6 3KVA SURGE SUPPRESSOR

NOTE:
SEE BUILDING DRAWINGS FOR FINAL ELECTRICAL DRAWINGS AND ELECTRICAL PANEL LOCATION.

- 7 ELECTRICAL FUELING PANEL "S" (SECURE)
- 8 CONDUIT ROUTED ABOVE CEILING TO POWER CONDITIONER
- 9 CONDUIT ROUTED ABOVE CEILING TO PANEL "G"
- 10 INTERCOM PANEL
- 11 C-STORE ELECTRICAL PANELS (LOCATION TO BE DETERMINED)
- 12 C-STORE WIREWAY (LOCATION TO BE DETERMINED)
- 13 C-STORE COMMUNICATION BACKBOARD (LOCATION TO BE DETERMINED)
- 14 DEDICATED AREA FOR DISPENSER MEDIA RACK/CABINET, IF REQUIRED. CHECK WITH BP CONSTRUCTION AND MAINTENANCE COORDINATOR

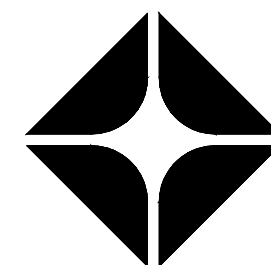
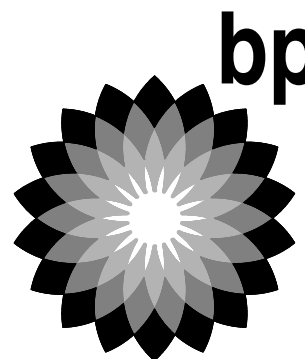
H: TYPICAL MANAGER OFFICE ELEVATION

NOT TO SCALE:

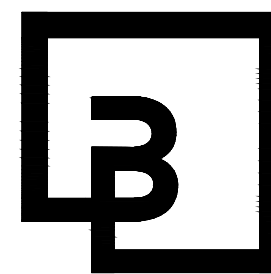


NOTE: INDICATES ITEMS FOUND ON MATERIALS LIST SHEET M.5.1.01 & M.5.1.02

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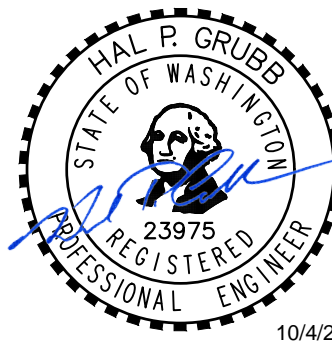


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3400 am/pm
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PUYALLUP, WASHINGTON

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01/01/2023	21730

ELECTRICAL PANEL E-STOP CONTROL WIRING SCHEMATIC AND TYPICAL FUELING ELEVATION

SHEET NO:

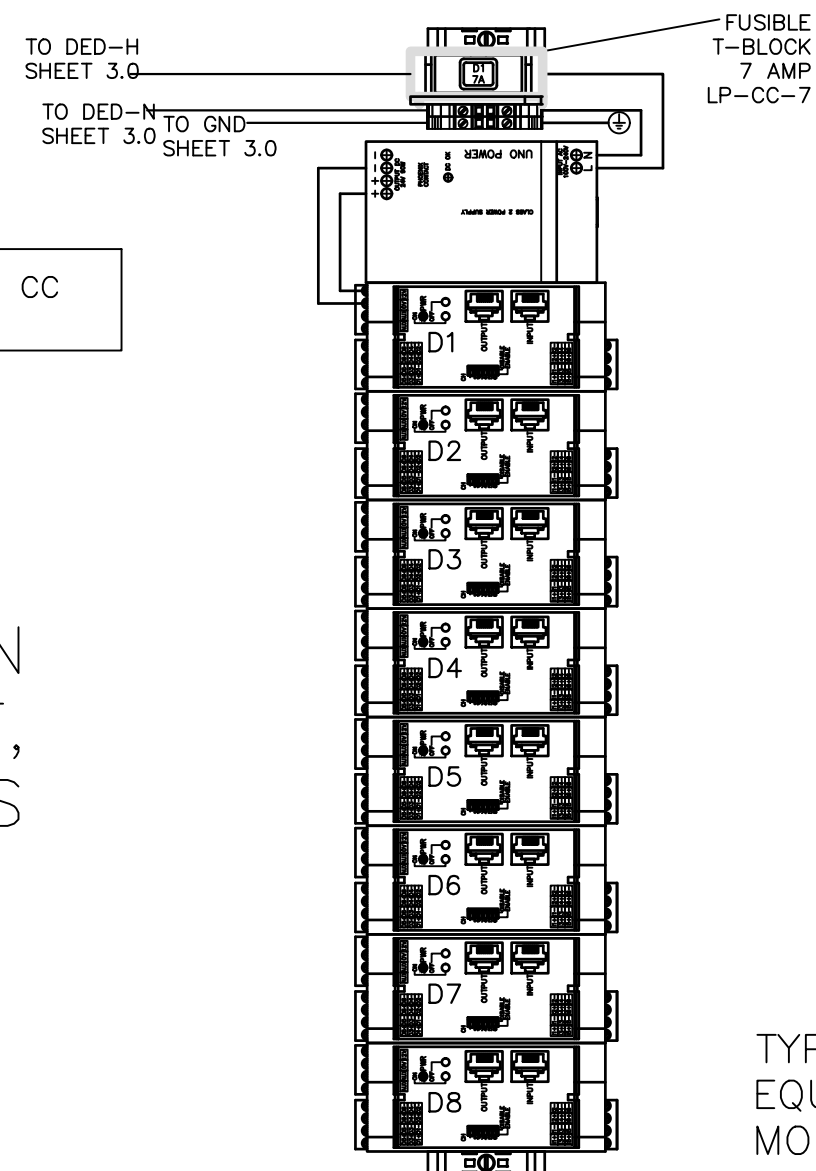
M.5.1.48

RED LABEL
WHITE LETTER
PLACE NEXT TO
FUSE HOLDER

REPLACE WITH ONLY CLASS CC
CURRENT LIMITING FUSES

DED BOARDS MOUNTED IN
CPI CONTROL CABINET,
PROTECTED BY BARRIERS

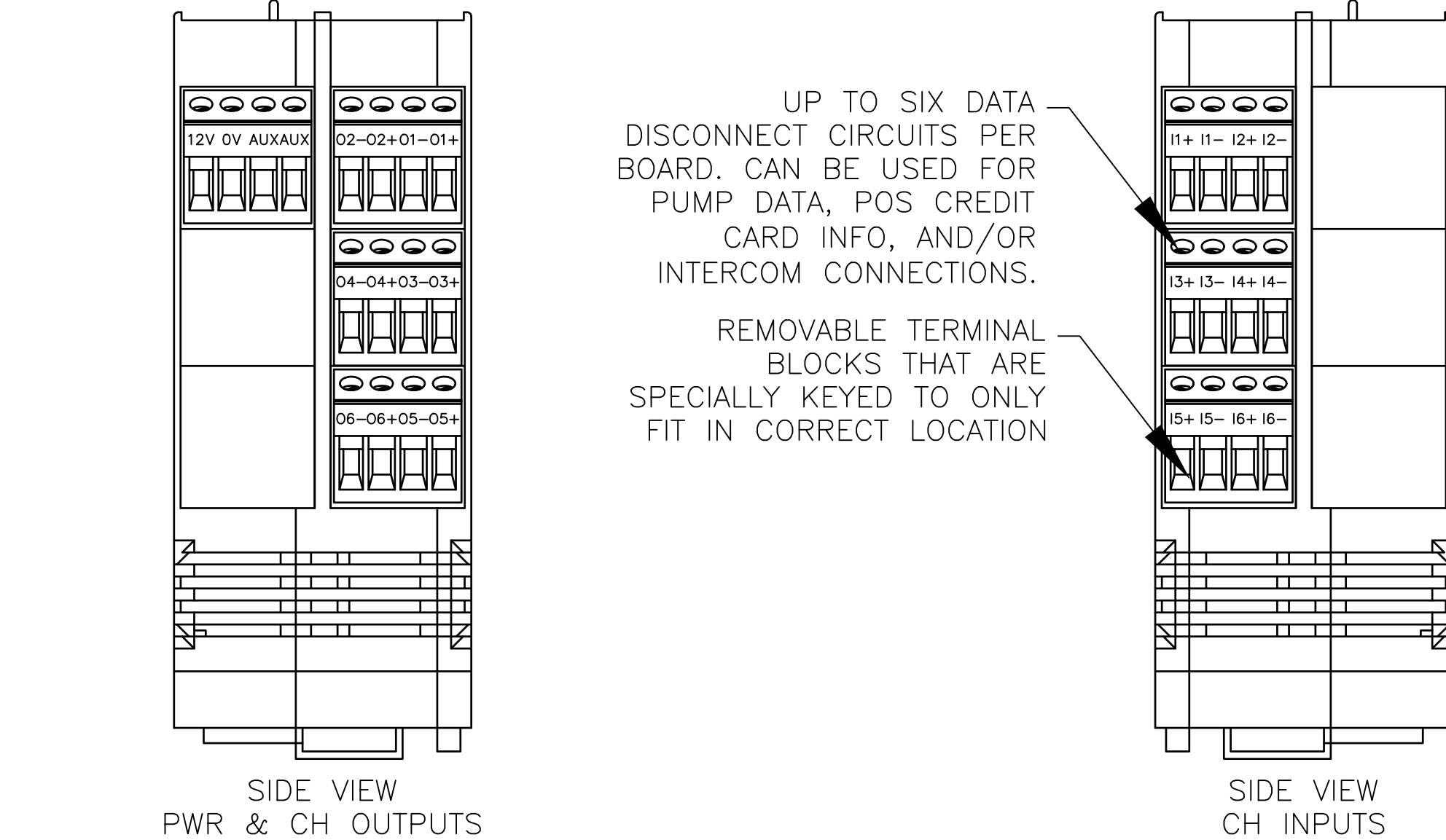
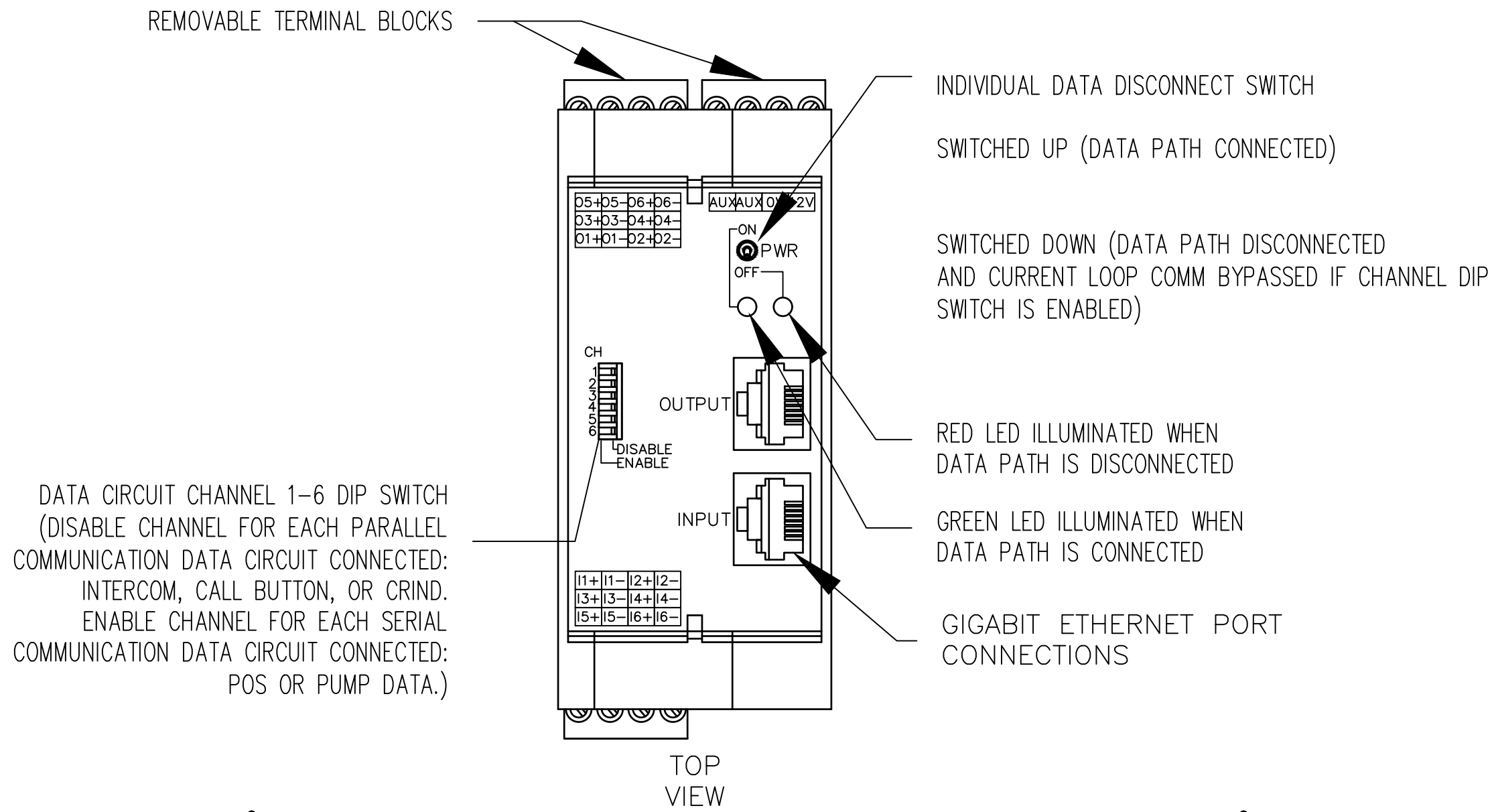
WIRE LEGEND	
14 AWG WIRING:	
18 AWG WIRING:	
FIELD WIRING:	



TYPICAL DISPENSING
EQUIPMENT DISCONNECT
MODULES

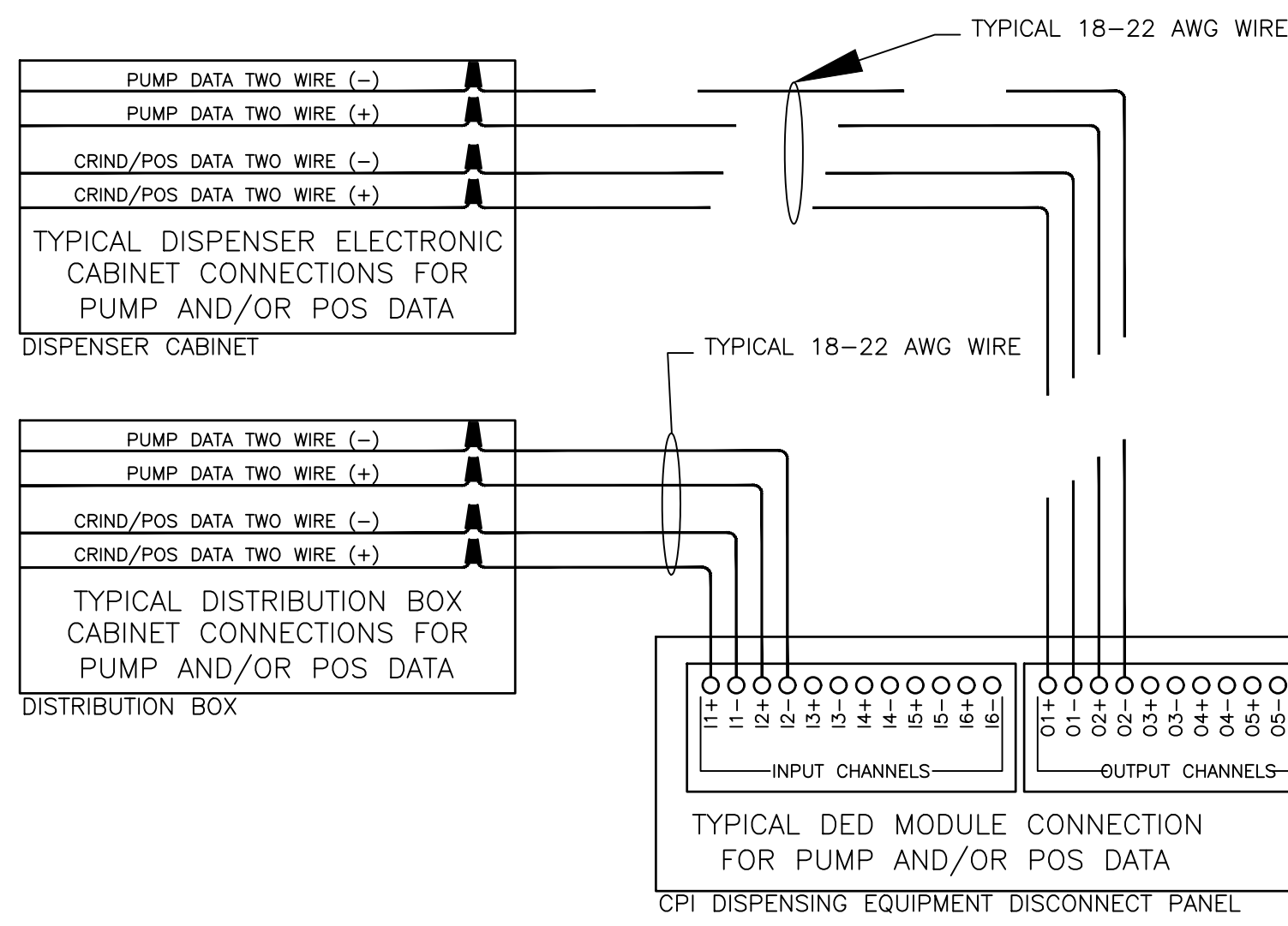
1.0 CPI DED SYSTEM

FACTORY INSTALLED



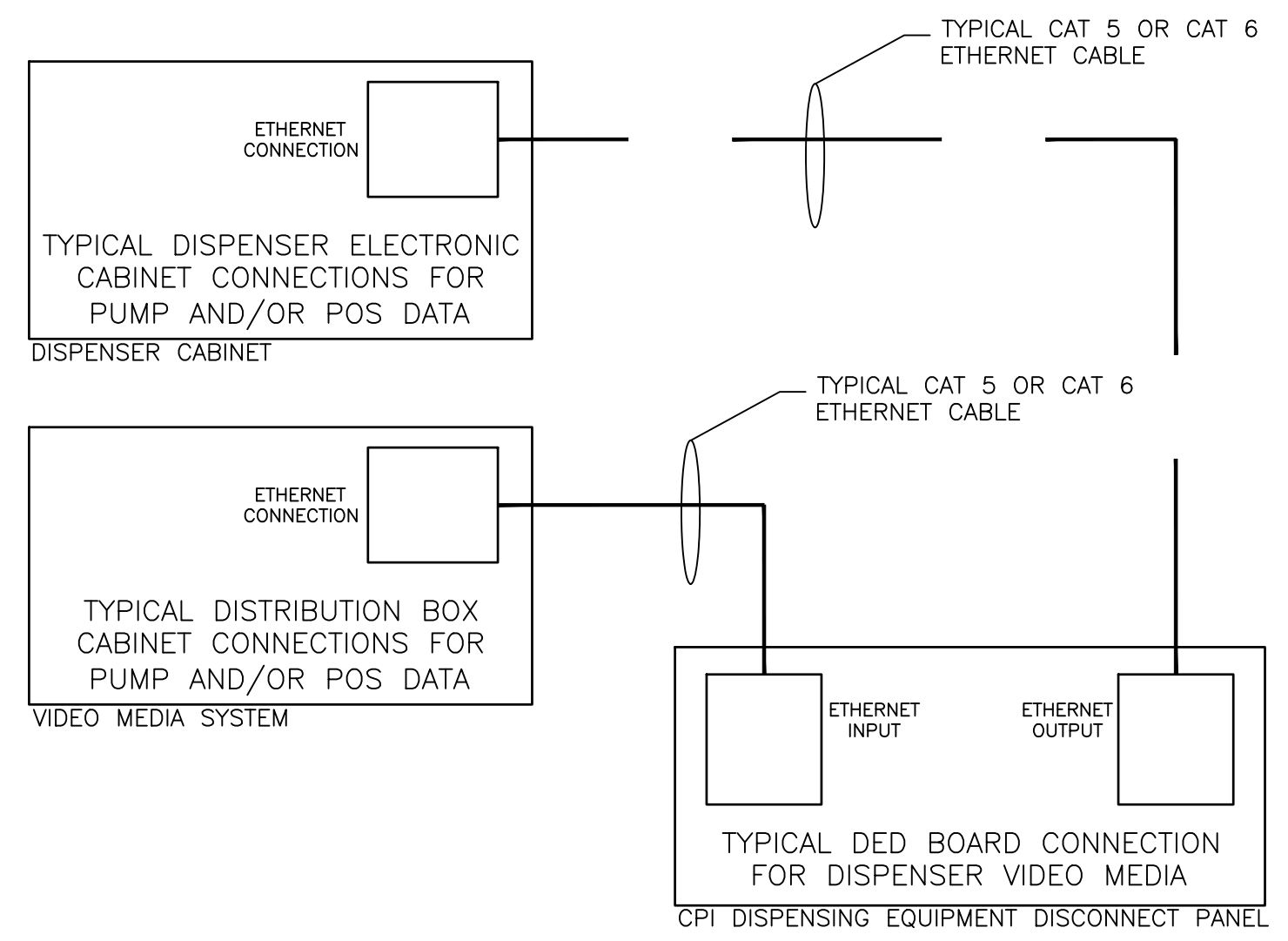
1.6 DED BOARD DESCRIPTION

TYPICAL BOARD



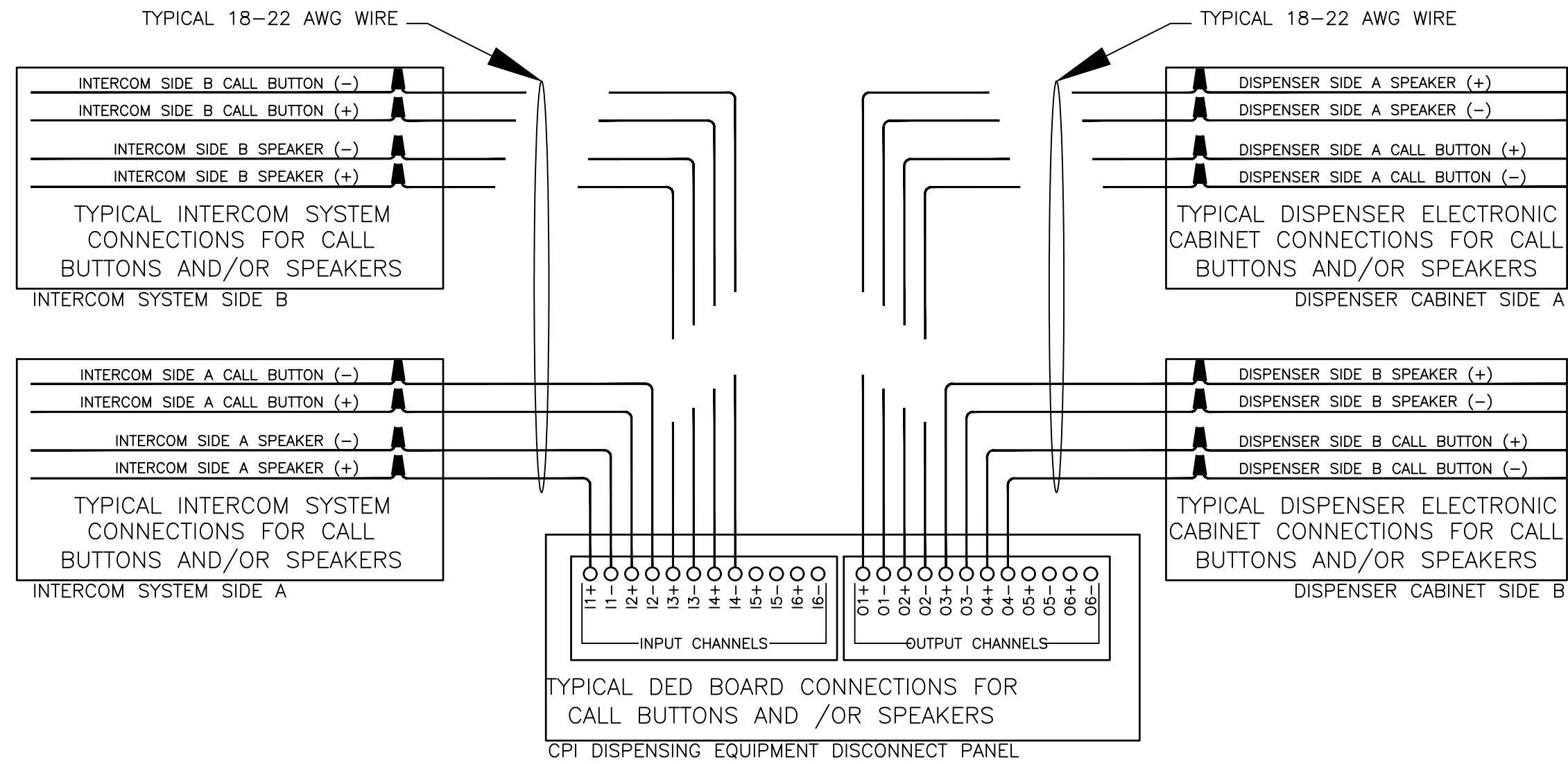
1.1 CPI PUMP DATA DISCONNECT

TYPICAL FIELD WIRING CONNECTION



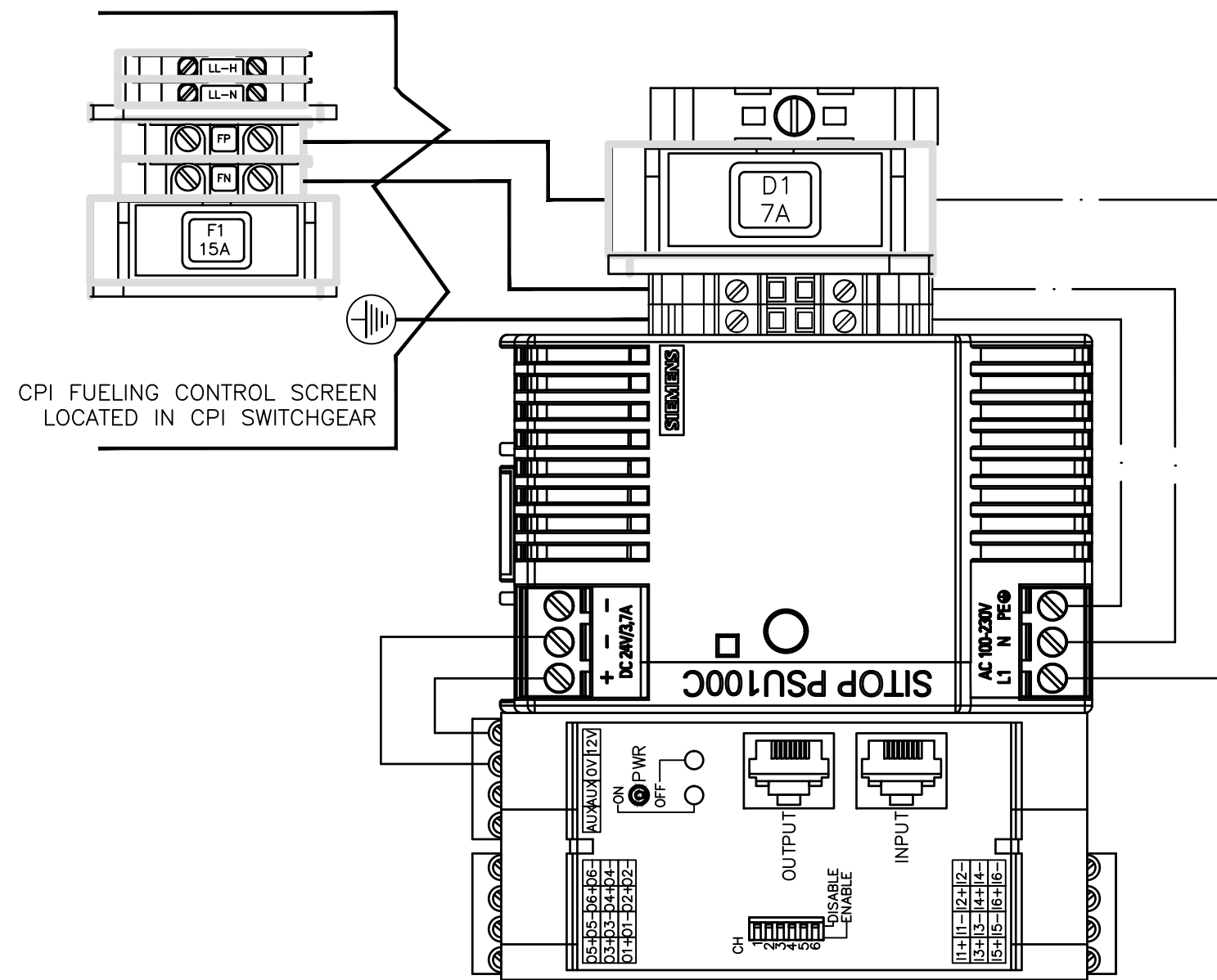
1.2 CPI VIDEO MEDIA DISCONNECT

TYPICAL FIELD WIRING CONNECTION



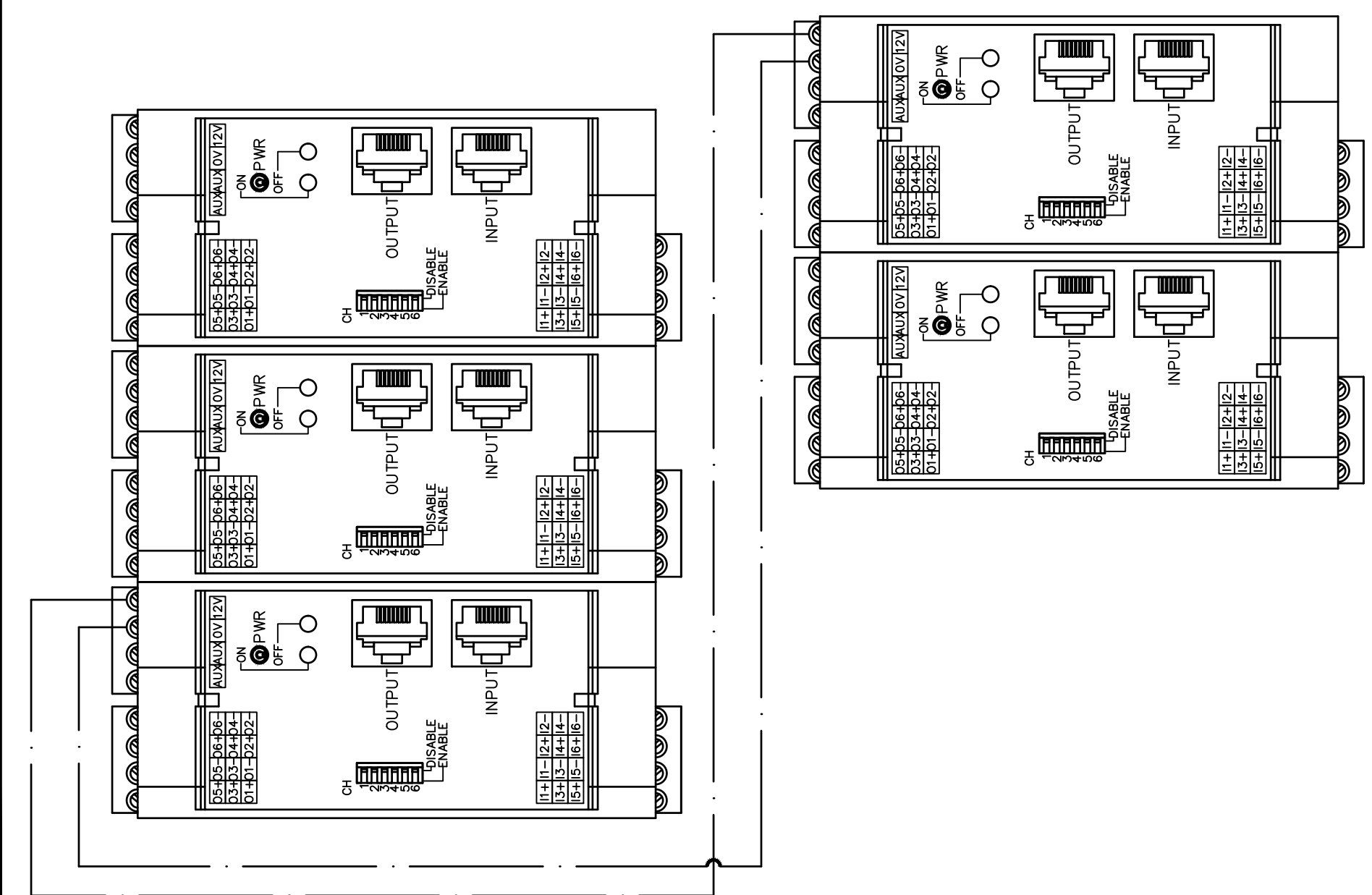
1.3 CPI INTERCOM DATA DISCONNECT

TYPICAL FIELD WIRING CONNECTION



1.4 DED WIRING DIAGRAM

120VAC TO 24VDC

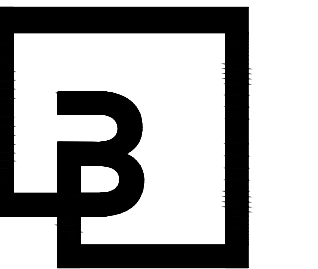
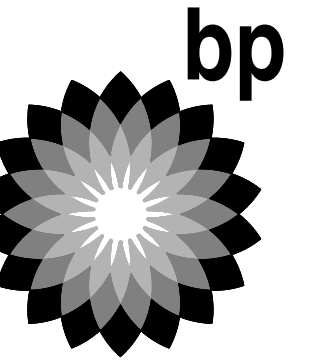


1.5 DED WIRING DIAGRAM

SAMPLE WIRING BETWEEN 2 LINES OF DED UNITS

NOTE: INDICATES ITEMS FOUND
ON MATERIALS LIST SHEET
M.5.1.01 & M.5.1.02

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CHECKED BY: OV BP REP:
DRAWN BY: NP/RF ALLIANCE PM:
VERSION: V-15.0 PROJECT NO:
01/01/2023 21730

DRAWING TITLE:
ELECTRICAL LOW VOLTAGE
DISCONNECT FOR
DATA/INTERCOM/ETHERNET
WIRING DIAGRAMS

SHEET NO:

M.5.1.49

