

**To: Stacey Nerger**

**Date: 5.27.25**

**From: Mike Schulze, CPM, Cobblestone**

**Subject: SP25-018 Parker & Pine F1 L4 – Car Wash Canopies – Site Plan Amendment**

Revised documents for SP25-018 have been submitted. Below is a short narrative of the required revisions

1. The Civil Site plan has been revised to depict asbuilt conditions.
2. The Utility plan added notes to existing utility equipment.
3. The Landscape plan has been revised to show revised placement of plant stock due to added concrete pads.
4. The Architectural Exterior Elevations have been revised to depict asbuilt conditions, including canopies.
5. The Photometric plan has been updated to depict asbuilt conditions.
6. Parker Engineering comments have been addressed in an updated Drainage Letter.
7. Xcel Energy comments have been discussed with Xcel (Donna George) and no issues exist.
8. Stamped Canopy plans have been uploaded separately for a second Building Department review under COM23-0034. The Planning compliance revisions to the canopies (fascia detail) are also included on this set.
9. Exterior equipment screening is in production and will be installed in approximately 1 week.

Mike Schulze

Cobblestone Car Wash

503.593.1593

mschulze@spotlessbrands.com



# SITE PLANS

## PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH

### 9572 TWENTY MILE ROAD PARKER, COLORADO

A PORTION OF THE 1/4 OF SECTION 9, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF 6TH P.M.  
COUNTY OF DOUGLAS, STATE OF COLORADO



**Vicinity Map**

1"=2,000'

#### SHEET INDEX

SHEET #	SHEET TITLE
1 OF 7	COVER SHEET
2 OF 7	EXISTING CONDITIONS MAP
3 OF 7	SITE PLAN
4 OF 7	GRADING PLAN
5 OF 7	UTILITY PLAN
6 OF 7	LANDSCAPE PLAN
7 OF 7	LANDSCAPE NOTES
AS1	EXTERIOR ELEVATIONS
AS2	DETAILS
AS3	ENCLOSURE PLANS & ELEVATIONS
AS4	DETAILS
ES1.0	LIGHTING PLAN
ES1.1	EXTERIOR LIGHTING SPEC SHEETS



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#### LEGAL DESCRIPTION

(PER THE TITLE COMMITMENT)

LOT 4,  
PARKER AND FILING NO. 1,  
COUNTY OF DOUGLAS,  
STATE OF COLORADO.

#### BENCHMARK

DOUGLAS CONTROL MONUMENT #1.095035, A 3" ALUMINUM CAP.  
ELEVATION = 5906.34 FEET (NAVD1988). AS PUBLISHED BY DOUGLAS COUNTY

#### BASIS OF BEARINGS

THE BEARINGS ARE BASED ON THE WEST ROW LINE OF SOUTH PARKER ROAD ASSUMED TO BEAR S23°56'20"E BETWEEN MONUMENTS FOUND AND DESCRIBED HEREON.

#### FLOOD ZONE INFORMATION

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", AREAS OF MINIMAL FLOOD HAZARD, AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM.  
MAP NUMBER: 08035C0067G  
EFFECTIVE DATE: MARCH 16, 2016

#### EXISTING LEGEND

- PROPERTY LINE/RIGHT OF WAY LINE
- ⊙ COMMUNICATIONS MANHOLE
- ⊙ SANITARY SEWER MANHOLE
- ⊙ STORM SEWER MANHOLE
- GAS --- UNDERGROUND GAS LINES
- COM --- UNDERGROUND COMMUNICATIONS LINES
- STM --- UNDERGROUND STORM SEWER LINES

#### DEVELOPMENT PLAN NOTES

- LIGHTING NOTE: IN THE INTEREST OF COMPATIBILITY OF SURROUNDING LAND USES, ILLUMINATION OF ANY KIND ON PRIVATE PROPERTIES SHALL BE DIRECTED AND CONTROLLED IN SUCH A MANNER SO THAT THERE SHALL BE NO DIRECT RAYS OF LIGHT WHICH EXTEND BEYOND THE BOUNDARIES OF THE PROPERTY FROM WHICH IT ORIGINATES.
- TRASH ENCLOSURE NOTE: TRASH ENCLOSURES SHALL BE CONSTRUCTED TO A MINIMUM HEIGHT OF SIX (6) FEET AND OF THE SAME MATERIAL AND COLOR AS THE MAIN BUILDING.
- SCREENING NOTE: ROOF MOUNTED ELECTRICAL AND MECHANICAL EQUIPMENT SHALL BE SCREENED SUCH THAT THE EQUIPMENT IS NOT VISIBLE FROM ANY POINT. SUCH EQUIPMENT SHALL BE SCREENED WITH THE SAME MATERIALS AND COLORS AS THE MAIN BUILDING.
- SIGNAGE NOTE: APPROVAL OF A SEPARATE SIGN PERMIT IS REQUIRED IN ADDITION TO DEVELOPMENT PLAN APPROVAL. SIGN LOCATIONS SHOWN ON THE DEVELOPMENT PLAN WILL BE REVIEWED FOR POSSIBLE CONFLICTS WITH SIGHT TRIANGLES AND EASEMENTS. THESE SIGNS WILL NOT BE APPROVED BY THE DEVELOPMENT PLAN REVIEW PROCESS. ALL SIGNS MUST CONFORM TO THE CITY'S STANDARDS.
- DOWNSPOUT NOTE: NO ROOF DOWNSPOUT OUTFALLS WILL BE ALLOWED TO DRAIN OVER SIDEWALKS, BIKE PATHS, OR ANY OTHER PEDESTRIAN ROUTES.
- AMERICANS WITH DISABILITIES NOTE: THE APPLICANT HAS THE OBLIGATION TO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE AMERICAN DISABILITIES ACT. APPROVAL OF THIS DEVELOPMENT PLAN DOES NOT CONSTITUTE COMPLIANCE WITH THIS ACT.
- CONSTRUCTION NOTE: THE APPROVAL OF THIS DEVELOPMENT PLAN DOES NOT CONSTITUTE FINAL APPROVAL OF GRADING, DRAINAGE, UTILITY, PUBLIC IMPROVEMENTS, AND BUILDING PLANS.
- THESE PLANS MUST BE REVIEWED AND APPROVED BY THE APPROPRIATE AGENCY PRIOR TO THE ISSUANCE OF BUILDING PERMITS.
- UNDERGROUND UTILITY NOTE: ALL OVERHEAD UTILITIES SERVING THIS SITE MUST BE PLACED UNDERGROUND PER THE LAND DEVELOPMENT CODE.

#### RESOURCE LIST

<b>APPLICANT</b> 3K1 CONSULTING SERVICES, LLC 11811 N. TATUM BOULEVARD PHOENIX, AZ 85028 PH: (602) 850-8081	<b>TOWN OF PARKER PLAN REVIEW</b> 20120 E. MAIN STREET PARKER, CO 80138 CHIP KERHOVE PH: (703) 989-2244 RANDY CAPRA
<b>OWNER</b> QUICK N CLEAN 7291 E. ADOBE DRIVE, SUITE 115 SCOTTSDALE, AZ 85255 PH: (480) 707-3531	<b>TOWN OF PARKER ENGINEERING / PUBLIC WORKS</b> 20120 E. MAIN STREET PARKER, CO 80138-7335 TYLER SANDT PH: (303) 805-3182
<b>OVERALL DEVELOPER</b> EVT PARKER COLORADO, LLC 2710 E. CAMELBACK ROAD, SUITE 210 PHOENIX, AZ 85016 RYAN AMATO PH: (602) 468-6100	<b>WATER &amp; SEWER</b> PARKER WATER AND SANITATION DISTRICT 18100 E. WOODMAN ROAD PARKER, CO 80134 DRAYTON SANDERSON/ ROBERT RAMSEY PH: (303) 841-4627
<b>CIVIL ENGINEER</b> CEI ENGINEERING ASSOC., INC. 730 PINE DALE AVE. FRESNO, CA JASON HATWIG, PROJECT MANAGER PH: (559) 447-3119	<b>FIRE DEPARTMENT</b> SOUTH METRO FIRE RESCUE AUTHORITY 9195 E. MINERAL AVE. CENTENNIAL, CO 80112 CHIP KERHOVE PH: (720) 989-2244
<b>LANDSCAPE ARCHITECT</b> CEI ENGINEERING ASSOC., INC. 3108 S.W. REGENCY PARKWAY, SUITE 2 BENTONVILLE, AR 72712 CHIP ASHLEY PH: (479) 273-9472	<b>ELECTRICAL</b> TREA 5496 US HWY 85 SEDALIA, CO 80135 PH: (303) 688-7431
<b>ARCHITECT</b> CHSOA 1777 S. BELLAIRE STREET, SUITE 100 DENVER, CO 80222 BILL STOW PH: (303) 962-9164	<b>NATURAL GAS</b> XCEL ENERGY 1800 LARIMER STREET DENVER, CO 80202 PH: (303) 571-7511
<b>LAND SURVEYOR</b> RUBIN SURVEYING 3312 AIRPORT ROAD BOULDER COLORADO 80301 PH: (303) 464-9515	



CEI ENGINEERING ASSOCIATES, INC.  
710 W. PINE DALE AVE.  
FRESNO, CA 93711  
PHONE: (559) 447-3119  
FAX: (559) 447-3129



CLIENT  
3K1 CONSULTING SERVICES, LLC.  
11811 N. TATUM BOULEVARD,  
PHOENIX, ARIZONA 85028  
PHONE: (602) 850-8100

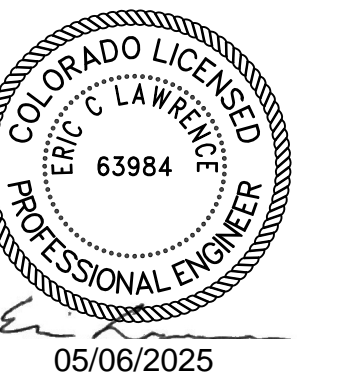


PLANS PREPARED FOR  
QUICK N CLEAN  
7291 E. ADOBE DRIVE, SUITE 115  
SCOTTSDALE, AZ 85255  
PHONE: (480) 707-3531

#### REVISION

NO.	DESCRIPTION	DATE

PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO

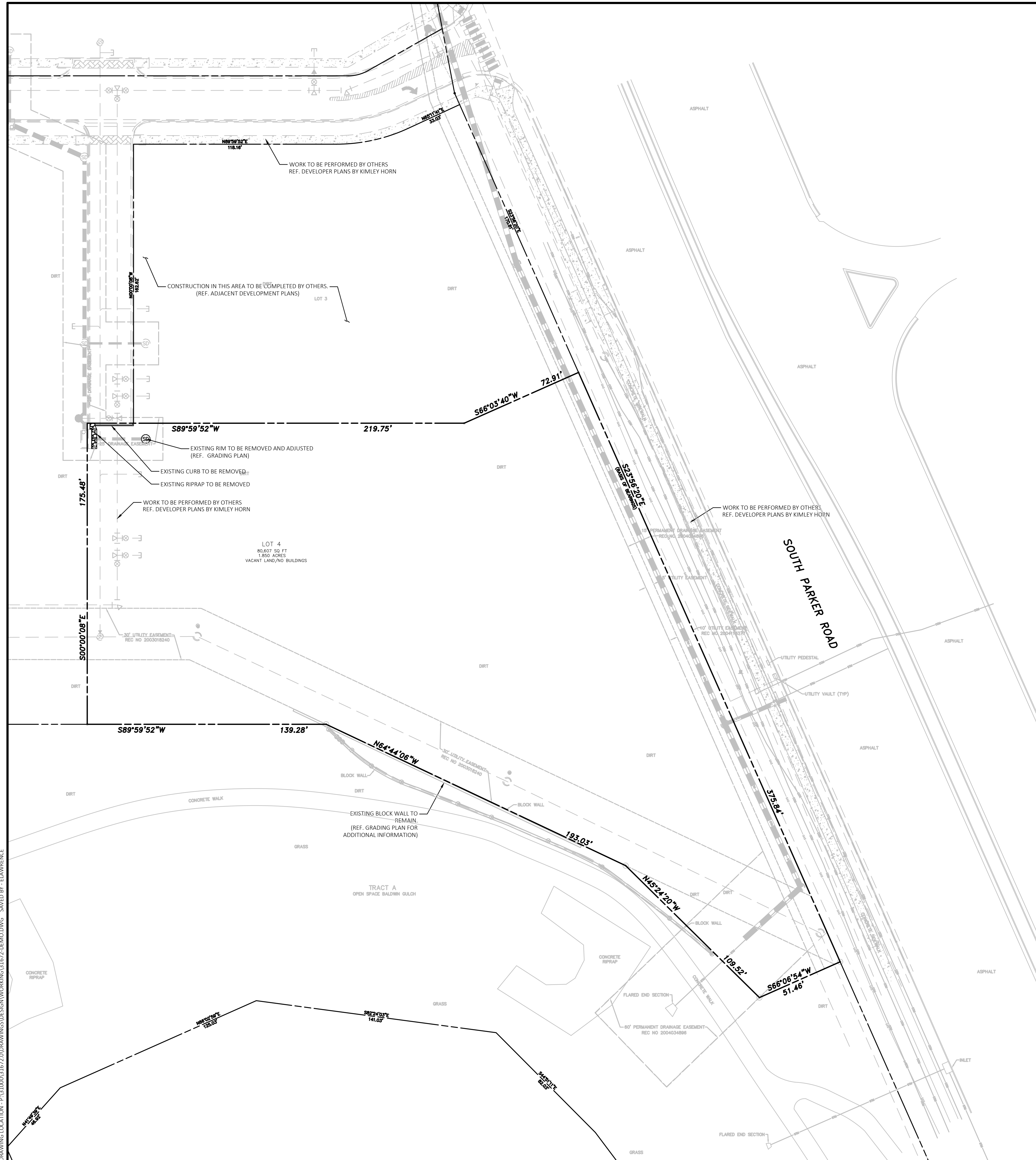


PROFESSIONAL OF RECORD	ECL
PROJECT MANAGER	MS
DESIGNER	RM
CEI PROJECT NUMBER	31672
DATE	5/5/2025
REVISION	REV-7

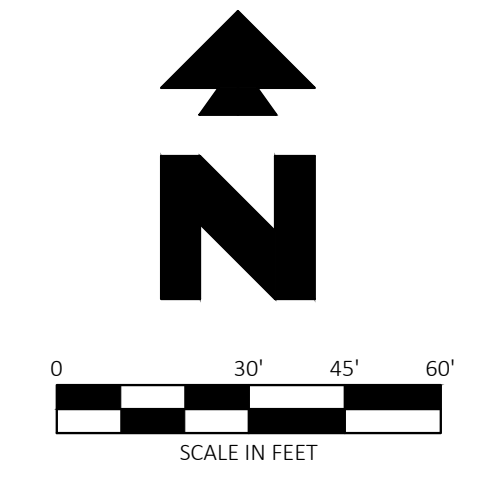
#### COVER SHEET

SHEET TITLE  
SHEET NUMBER

01 OF 07



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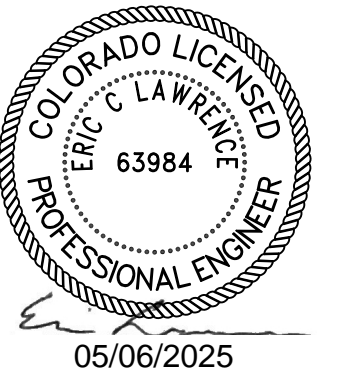
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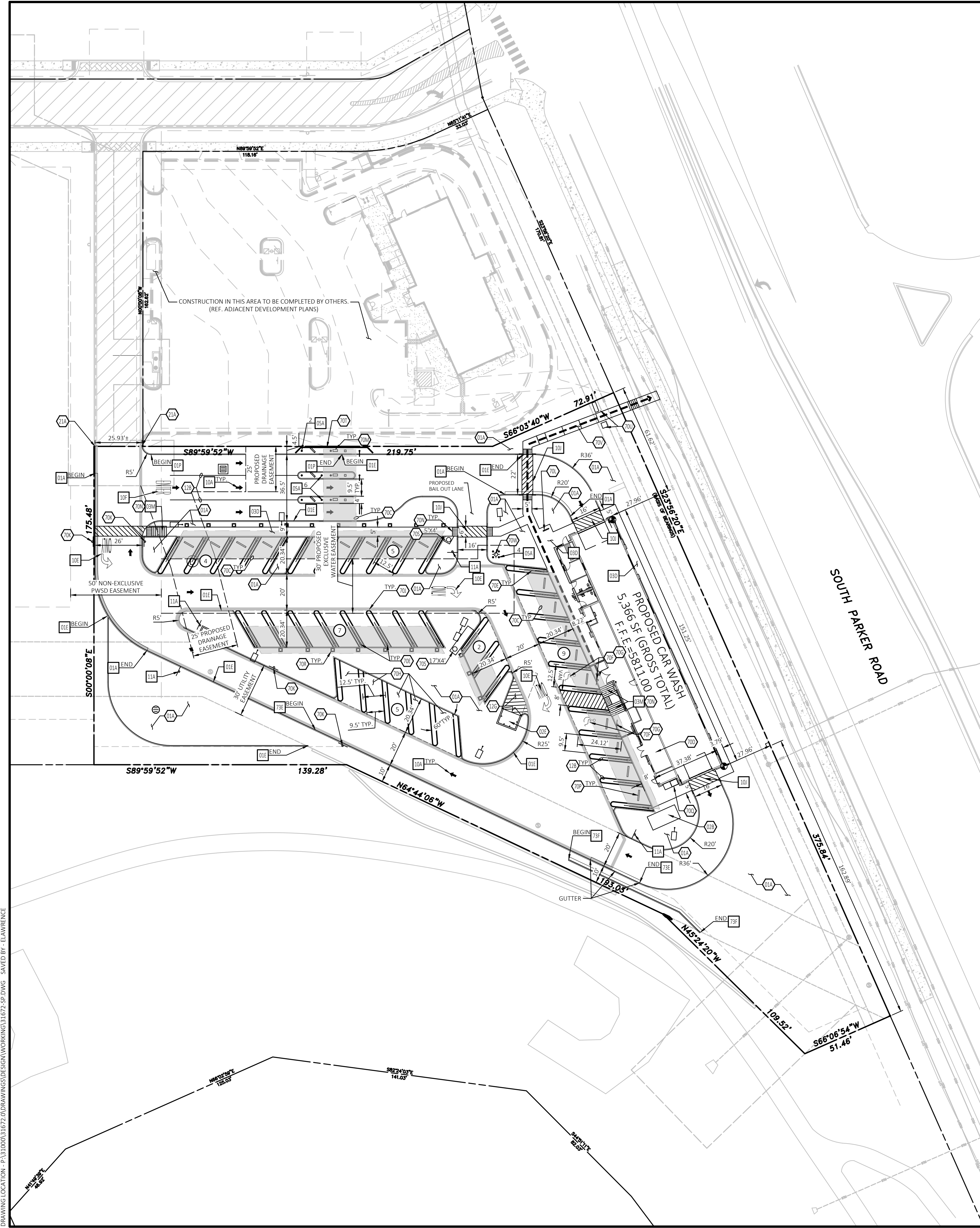
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9572 TWENTY MILE ROAD  
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PROFESSIONAL OF RECORD	ECL
PROJECT MANAGER	MS
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EXISTING CONDITION  
& DEMOLITION PLAN  
SHEET TITLE  
SHEET NUMBER

DRAWING LOCATION: P:\31600\31672\DRAWINGS\DESIGN\WORKING\31672-REV-0.DWG, SAVED BY: ELAWRENCE



**LEGAL DESCRIPTION**

REFERENCE 01 - COVER SHEET FOR LEGAL DESCRIPTION.

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**NOTE:**

SEE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF PORCHES, RAMPS, VESTIBULE, SLOPED PAVING, TRUCK DOCKS, BUILDING UTILITY ENTRANCE LOCATIONS AND PRECISE BUILDING DIMENSIONS.

**GENERAL SITE NOTES**

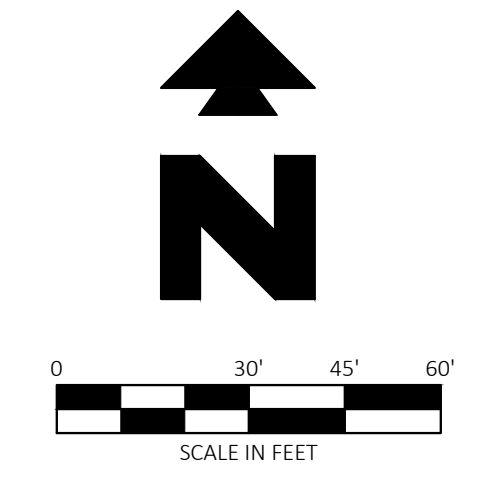
- ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
- PRIOR TO CONSTRUCTION WITHIN ANY EXISTING PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE AUTHORITY HAVING JURISDICTION.
- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, SLOPE PAVING, SIDEWALKS, EXIT PORCHES, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
- ALL DISTURBED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
- ALL CURBED RADII ARE TO BE 2' OR 10' UNLESS OTHERWISE NOTED. STRIPED RADII ARE TO BE 5'.
- ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- EXISTING STRUCTURES TO REMAIN WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED / ADJUSTED AS NECESSARY. ALL COST SHALL BE INCLUDED IN BASE BID.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, (UNLESS OTHERWISE NOTED ON PLANS) INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES REQUIREMENTS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
- SITE BOUNDARY, TOPOGRAPHY, UTILITY AND ROAD INFORMATION TAKEN FROM A SURVEY BY A LAND SURVEYOR.
- THE SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE PROJECT CONTRACT REQUIREMENTS.
- REFER TO ARCH. PLANS FOR Pylon AND/OR MONUMENT SIGNS.
- REFER TO ARCH. PLANS FOR SITE LIGHTING ELECTRICAL PLAN.
- UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON OR WITHIN THE CONTRACT REQUIREMENTS:
  - UNLESS OTHERWISE NOTED, ALL CURB ON-SITE SHALL BE INSTALLED PER 01E.
  - ALL PARKING LOT SIGN BASE SUPPORTS (EXCLUDING ACCESSIBLE PARKING SIGNAGE) SHALL BE INSTALLED PER DETAIL 12E.
  - ALL PARKING LOT STRIPING SHALL BE PAINTED WITH 4 INCH. YELLOW PAINT (TYP.)
  - ACCESSIBLE PARKING STALL STRIPING AND ISA SYMBOL SHALL BE PAINTED PER ARCH. PLANS.
- ALL ACCESSIBLE STALLS SHALL BE MARKED WITH THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AND A WARNING THAT VEHICLES IN VIOLATION OF THE LOCAL MUNICIPAL CODE SHALL BE TOWED AWAY. THE INTERNATIONAL SYMBOL AND TOW-AWAY WARNING SHALL BE POSTED CONSPICUOUSLY ON SEVEN-FOOT POLES.
- ALL ACCESSIBLE PARKING STALLS SHALL BE PLACED ADJACENT TO FACILITY ACCESS RAMPS OR IN STRATEGIC AREAS WHERE THE OPERATOR SHALL NOT HAVE TO WHEEL OR WALK BEHIND PARKED VEHICLES WHILE TRAVELING TO OR FROM ACCESSIBLE PARKING STALLS AND RAMPS.
- MAXIMUM SLOPE IN ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2% (1:48) IN ANY DIRECTION.
- ANY FACILITIES THAT ARE TO REMAIN AND ARE DAMAGED BY THE CONTRACTOR AS A RESULT OF CONSTRUCTION, SHALL BE REPLACED PER CURRENT CONTRACT REQUIREMENTS AT THE SOLE EXPENSE OF THE CONTRACTOR.
- REFER TO DETAIL 08R FOR CONCRETE JOINT DETAILS.
- CONTRACTOR SHALL ENSURE ADA CONFORMANCE OF ALL EXISTING SIDEWALKS AND CURB RAMPS WITHIN PUBLIC RIGHT-OF-WAY WITHIN THE PROJECT LIMITS. ALL EXISTING SIDEWALKS AND CURB RAMPS SHALL CONFORM TO THE LATEST ADOPTED VERSION (AND ALL AMENDMENTS) OF THE ADA STANDARDS FOR ACCESSIBLE DESIGN & THE ARCHITECTURAL BARRIERS TEXAS ACCESSIBILITY STANDARDS (TAS). ANY EXISTING SIDEWALK THAT IS NOT IN CONFORMANCE WITH ADA REGULATIONS SHALL BE REMOVED AND REPLACED PER CITY OF DALLAS CODES AND COST SHALL BE INCLUDED IN BASE BID.
- ALL ADA SIGNS SHALL BE PERMITTED SEPARATELY.

**SITE DETAILS** (REF CONSTRUCTION DOCUMENTS FOR DETAILS)

- 01A TYPE A CONCRETE CURB AND GUTTER
- 01C TYPE C CONCRETE RAISED CURB AND GUTTER
- 01E TYPE E CURB
- 01P RAISED CURB AND GUTTER
- 03D CONCRETE SIDEWALK
- 03M WHEELCHAIR RAMP IN SIDEWALK
- 05A BOLLARD (SINGLE)
- 10A TRAFFIC FLOW ARROW
- 10B STOP BAR
- 10E RIGHT/LEFT TURN ONLY PAVEMENT MARKING
- 10F ENTER PAVEMENT MARKING WITH ARROW
- 10J CROSSWALK MARKING
- 11A DO NOT ENTER SIGN
- 12G STOP SIGN
- 73E REINFORCED REVERSED CURB WITHOUT FOOTING
- 73F REINFORCED REVERSED CURB WITH FOOTING



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**PROJECT INFORMATION**

PROJECT NAME:	QUICK N CLEAN ( CAR WASH)
PROJECT ADDRESS:	9572 TWENTY MILE ROAD, PARKER, COLORADO
PROJECT DESCRIPTION:	DEVELOPMENT OF A FREE-STANDING EXPRESS CAR WASH BUILDING WITH ASSOCIATED VACUUM (23) AND PLAY STATION (3) CANOPIES.

**SITE INFORMATION**

PROPOSED PROPERTY:	1.85± AC. / 80,607± S.F.
BUILDING AREA:	5,380± S.F.
LANDSCAPE AREA (ONSITE & FRONTAGE):	0.73± AC. / 31,882± S.F.
SITE LANDSCAPE RATIO:	39.55%

**ZONING INFORMATION**

JURISDICTION:	PARKER
EXISTING ZONING:	PLANNED DEVELOPMENT
PROPOSED ZONING:	PLANNED DEVELOPMENT
MAX. BUILDING HEIGHT ALLOWED:	2 STORIES, NOT TO EXCEED 45'-0"
PROPOSED BUILDING HEIGHT:	24'-8"
SETBACKS (PER PARKER & PLANNED MIXED USE DEVELOPMENT PLANNED DEVELOPMENT GUIDE):	
BUILDING:	
FRONT YARD:	10 FT MIN., 80FT MAX. FROM PUBLIC STREET
SIDE YARD:	10 FT
REAR YARD:	10 FT
LANDSCAPE:	(F) LANDSCAPING, EACH SITE SHALL BE LANDSCAPED IN ACCORDANCE WITH CHAPTER 13.06 OF THIS TITLE.

**PARKING REQUIREMENTS**

PARKING REQUIRED:	CAR WASH: 1 PER ESTABLISHMENT PLUS 1 PER STAFF MEMBER PER MAXIMUM SHIFT
PARKING PROVIDED:	EMPLOYEE: 4 (12.5' X 18') NON-VACUUM: 1 (12.5' X 18') VACUUM: 25 (12.5' X 18') ACCESSIBLE (VACUUM): 2 (12.5' X 18') (8' ACCESS AISLE) TOTAL PARKING: 32
BICYCLE PARKING REQUIRED:	2
BICYCLE PARKING PROVIDED:	2

**EXISTING LEGEND**

- PROPERTY LINE/RIGHT OF WAY LINE
- ⊕ COMMUNICATIONS MANHOLE
- ⊙ SANITARY SEWER MANHOLE
- ⊙ STORM SEWER MANHOLE
- GAS --- UNDERGROUND GAS LINES
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- SSM --- UNDERGROUND STORM SEWER LINES

**PROPOSED**

- CONCRETE CURB
- ⊕ BUILDING CONTROL POINT
- # PROPOSED PARKING SPACES
- ↔ PEDESTRIAN PATH OF TRAVEL
- VACUTECH CANOPY
- LIGHT POLE

**SITE NOTES**

- 01A SEEDED GREEN AREA.
- 02B TRANSFORMER PAD (PER ELEC. CO. AND/OR ARCH. PLANS)
- 02E TRASH DUMPSTER ENCLOSURE (PER ARCH. PLANS)
- 12B 4" WIDE PAINTED WHITE STRIPES, 2' O.C. @ 45°
- 21A TAPER CURB TO MATCH EXISTING CURB.
- 70C "VACUTECH" CORRUGATED ALUMINUM CANOPY, REF ARCHITECTURAL PLANS VACUUM CANOPY BY OTHERS AND SHOWN ON THIS PLAN FOR REFERENCE. REFER TO VENDOR PLANS FOR FINAL PLACEMENT AND INSTALL REQUIREMENTS.
- 70D "VACUTECH" VACUUM ENCLOSURE, REF ARCHITECTURAL PLANS VACUUM CANOPY BY OTHERS AND SHOWN ON THIS PLAN FOR REFERENCE. REFER TO VENDOR PLANS FOR FINAL PLACEMENT AND INSTALL REQUIREMENTS.
- 70E "VACUTECH" VACUUM (RYVAL ARCH), REF ARCHITECTURAL PLANS VACUUM CANOPY BY OTHERS AND SHOWN ON THIS PLAN FOR REFERENCE. REFER TO VENDOR PLANS FOR FINAL PLACEMENT AND INSTALL REQUIREMENTS.
- 70F "UNAUTHORIZED VEHICLES" WARNING SIGN (PER ARCH. PLANS)
- 70G ACCESSIBLE PARKING OFF-STREET (PER ARCH. PLANS)
- 70H EMPLOYEE PARKING & ESTABLISHMENT PARKING
- 70I FIRE LANE MARKING PER TOWN OF PARKER STANDARDS
- 70K NO PARKING FIRE LANE SIGN PER TOWN OF PARKER STANDARDS
- 70L BICYCLE RACK (PER ARCH. PLANS)
- 70M PAY STATION (REF ARCH. PLANS)
- 70N 3" DEEP DETECTABLE WARNING TO BE INSTALLED AT FULL WIDTH OF LANDING
- 70P WHEEL STOP, REF. ARCH. PLANS FOR FINAL PLACEMENT
- 70Q WORKING SPACE OF 3' BEYOND DOORS OPEN AT 90 DEGREES REQUIRED (WORKING SPACE CANNOT BE IN A DRIVABLE LOCATION).
- 70R 2' X 2' CONCRETE PAD WITH TRASH RECEPTACLE
- 70S CONCRETE PAD WITH VACUUM EQUIPMENT (SEE SIZE OF PAD THIS SHEET) (REF. VENDOR DRAWINGS FOR ADDITIONAL DETAILS)
- 70T CMU RETAINING FEATURE (10" DEEP BLOCKS, ROUGHLY 28" TALL)
- 70U ELECTRICAL TRANSFORMER PADS (PER ELEC. CO.)
- 70V STEPPED PATH
- 70W FIRE HYDRANT



CEI ENGINEERING ASSOCIATES, INC.  
710 W. PINE DALE AVE.  
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**REVISION**

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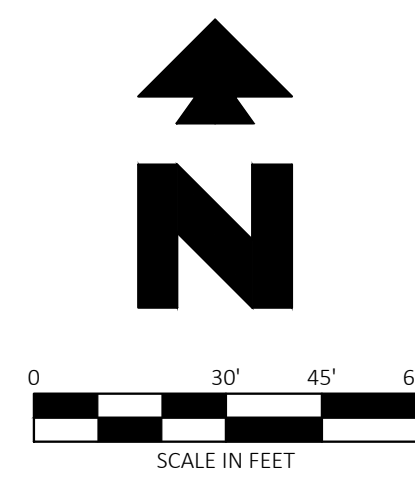
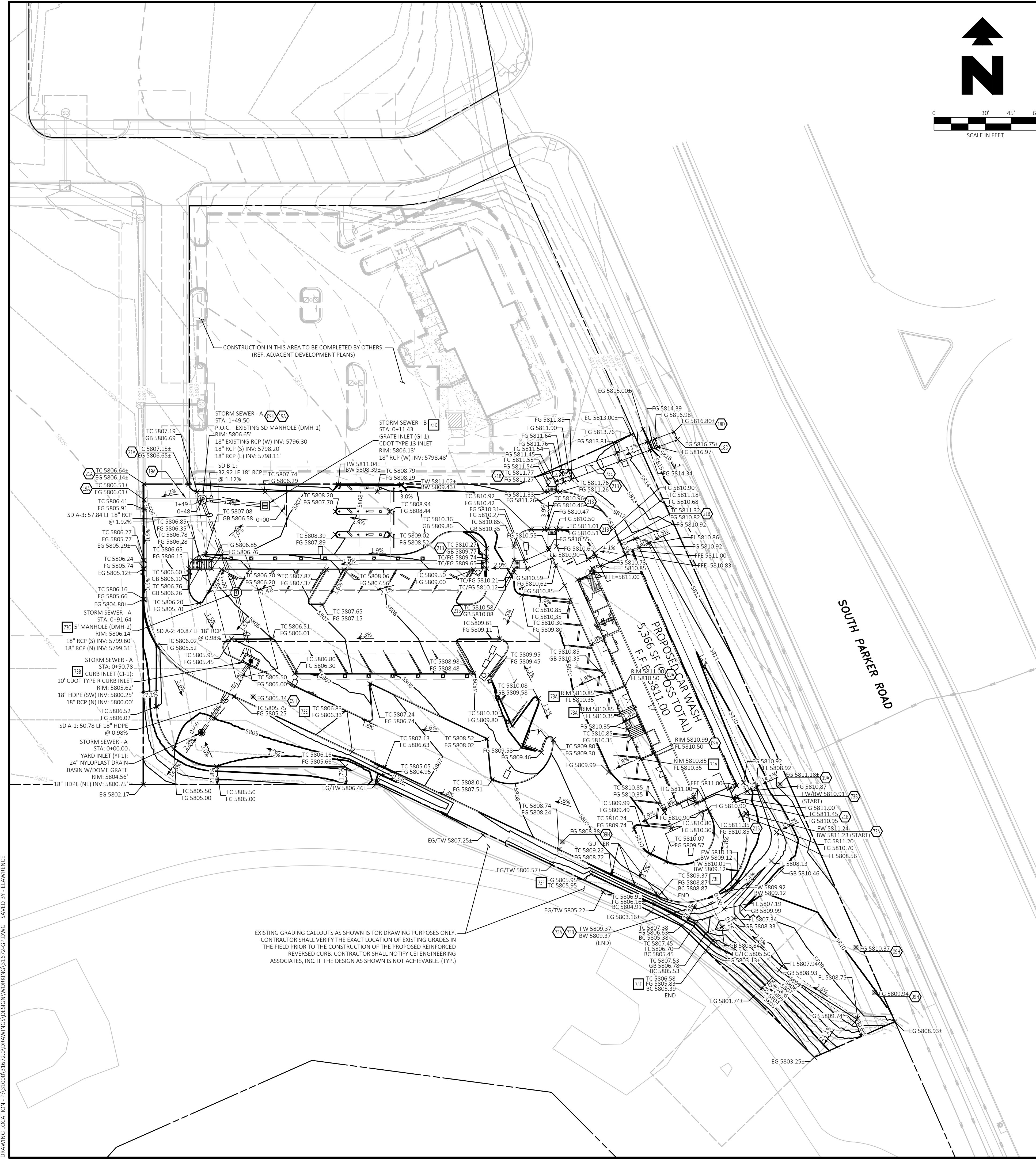
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REVISION	REV-7

SITE PLAN  
SHEET TITLE  
SHEET NUMBER

03 OF 07



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- GAS
- UNDERGROUND GAS LINES
- UNDERGROUND COMMUNICATIONS LINES
- UNDERGROUND STORM SEWER LINES

**PROPOSED**

- GRADE BREAK
- XXX — CONTOUR ELEVATIONS
- STORM DRAIN
- x XX.XX SPOT ELEVATIONS:  
BC = BOTTOM OF REINFORCED REVERSE CURB  
EG = EXISTING GRADE  
FFE = FINISH FLOOR ELEVATION  
FG = FINISH GRADE  
FL = FLOW LINE  
FW = FRONT OF WALL  
GB = GRADE BREAK  
RIM = TOP OF STRUCTURE  
TC = TOP OF CURB  
TW = TOP OF WALL

**GENERAL GRADING NOTES**

- A. PRIOR TO INSTALLATION OF STORM OR SANITARY SEWER, THE CONTRACTOR SHALL EXCAVATE, VERIFY, AND CALCULATE ALL CROSSINGS AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT THE ENGINEER IS NOT NOTIFIED OF DESIGN CONFLICTS.
- B. CONTRACTOR HAS THE OPTION TO BID THE FOLLOWING MATERIAL FOR THE STORM SEWER SYSTEM EXCEPT WHERE OTHERWISE NOTED: RCP, OR HDPE AS INDICATED ON THIS PLAN WHERE THE WORD PIPE IS USED. ALL PIPES SHALL HAVE A MAXIMUM ROUGHNESS COEFFICIENT ("N") OF 0.013 AND SHALL MEET OR EXCEED THE PIPE MANUFACTURERS REQUIREMENTS FOR MINIMUM AND MAXIMUM COVER. CONTRACTOR SHALL REFER TO THE PROJECT CONTRACT REQUIREMENTS FOR STORM SEWER SYSTEMS FOR ACCEPTABLE TYPE AND MATERIAL.
- C. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND 4" OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS (SEE LANDSCAPE PLAN FOR SEED MIX AND PROPER APPLICATION RATE). ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
- E. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON OR WITHIN THE SPECIFICATIONS OF THE LOCAL AUTHORITIES:  
ALL STORM DRAIN PIPE BEDDING SHALL BE INSTALLED PER DETAIL 28A (REF. CONSTRUCTION PLAN SET). ALL STORM DRAIN PIPES ARE MEASURED FROM CENTER OF STRUCTURES AND ENDS OF FLARED END SECTIONS.

**GRADING DETAILS (REF. CONSTRUCTION PLAN SET FOR DETAILS)**

- 01P RAISED CURB AND GUTTER
- 73A 6" CURB CHASE DRAIN (NON-RESIDENTIAL) LAYOUT - PER PARKER COLORADO STANDARD DETAIL 29
- 73B 10" CDOT TYPE R CURB INLET W/ TOWN OF PARKER MANHOLE COVER
- 73C 5" CDOT MANHOLE W/TOWN OF PARKER MANHOLE COVER
- 73D CDOT TYPE 13 INLET
- 73E REINFORCED REVERSED CURB WITHOUT FOOTING
- 73F REINFORCED REVERSED CURB WITH FOOTING

**GRADING NOTES**

- 09A DOWN SPOUTS - (TYP. - PER ARCH. PLANS).
- 09H REMOVE TOP OF EXISTING DRAINAGE STRUCTURE AND ADJUST RIM TO ELEVATION TO MATCH FINISH GRADE. IF EXISTING STRUCTURE TOP IS A GRATE, REPLACE WITH TOWN OF PARKER MANHOLE COVER.
- 18D MATCH EXISTING PAVEMENT ELEVATIONS.
- 19A EXISTING TO REMAIN.
- 21A TAPER CURB TO MATCH EXISTING CURB.
- 21B TAPER CURB FROM 6 INCHES TO 0 INCHES OVER 2 FEET.
- 73A RETAINING WALL (PER ARCH. PLANS).
- 73B FOUR (4) FOOT SCREEN WALL (PER ARCH. PLANS).
- 73C LANDSCAPE SWALE TERMINATION (REF SECTION VIEW THIS SHEET)
- 73D TRANSITION FROM 6" CURB AND GUTTER TO 12" RAISED CURB AND GUTTER
- 73E STEPPED PATH WITH UPPER STAIR SEGMENT; ELEVATIONS SET BY OTHERS

**ADA STANDARD NOTE**

THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY THE CITY OF PARKER DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY OTHER FEDERAL OR STATE ACCESSIBILITY LAWS OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS. SOLE RESPONSIBILITY FOR COMPLIANCE WITH FEDERAL AND STATE ACCESSIBILITY LAWS LIES WITH THE PROPERTY OWNER.

**BENCHMARK**

DOUGLAS CONTROL MONUMENT #1.095035, A 3" ALUMINUM CAP.  
ELEVATION = 5906.34 FEET (NAVD1988), AS PUBLISHED BY DOUGLAS COUNTY

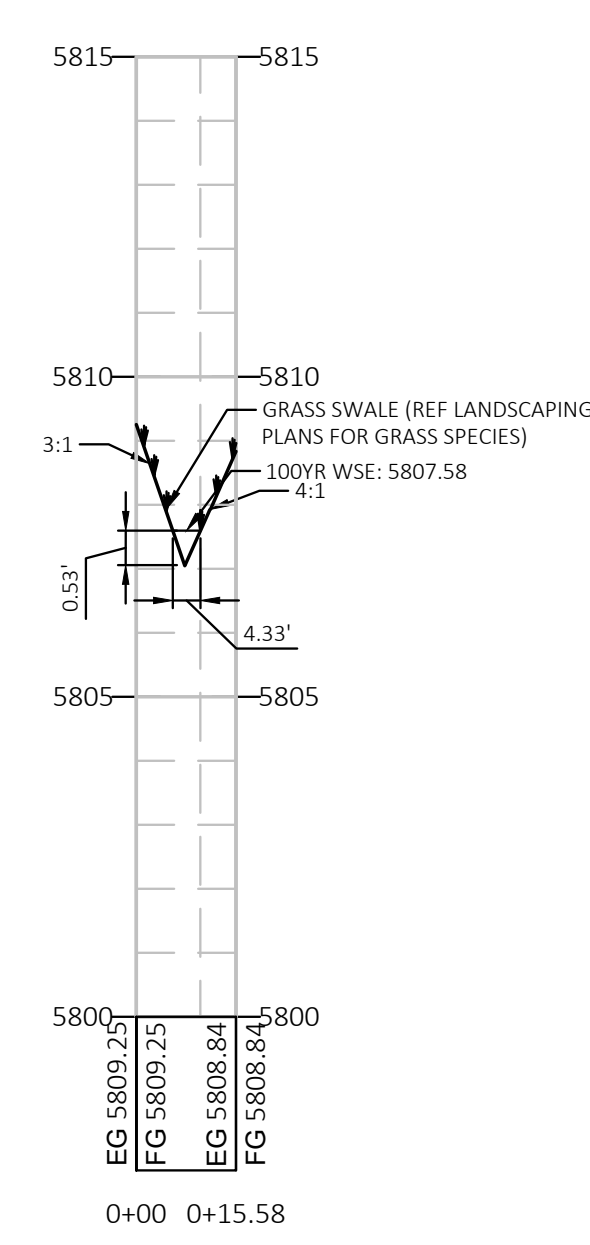
**BASIS OF BEARINGS**

THE BEARINGS ARE BASED ON THE WEST ROW LINE OF SOUTH PARKER ROAD ASSUMED TO BEAR S23°56'20"E BETWEEN MONUMENTS FOUND AND DESCRIBED HEREON.

**FLOOD ZONE INFORMATION**

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", AREAS OF MINIMAL FLOOD HAZARD, AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM.  
MAP NUMBER: 08055C0067G  
EFFECTIVE DATE: MARCH 16, 2016

LANDSCAPE SWALE CROSS SECTION PROFILE  
VERTICAL SCALE: 1"=3'  
HORIZONTAL SCALE: 1"=30'



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PLANS PREPARED FOR  
QUICK N CLEAN  
7291 E. ADOBE DRIVE, SUITE 115  
SCOTTSDALE, AZ 85255  
PHONE: (480) 707-3531

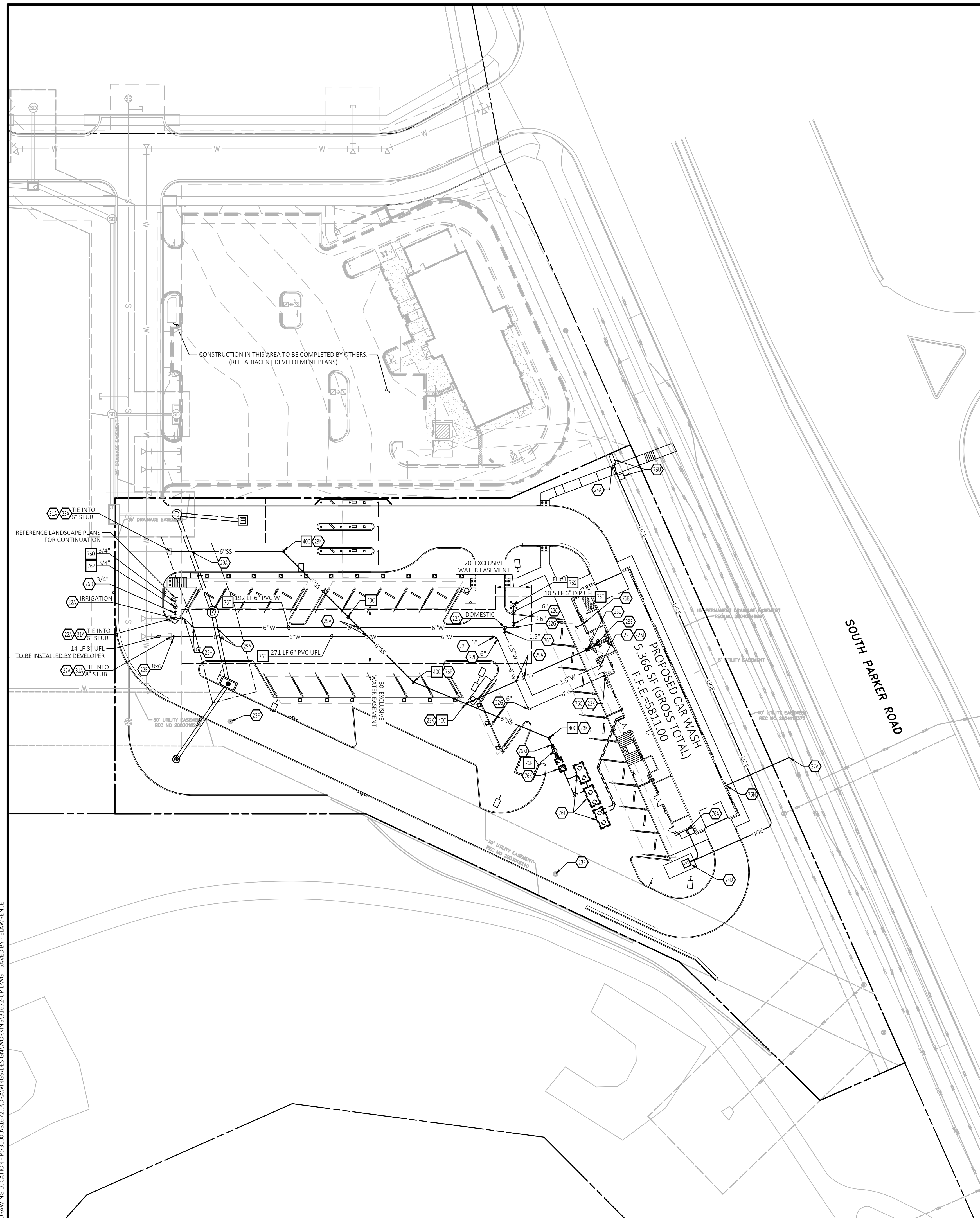
REVISION		
NO.	DESCRIPTION	DATE

PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO



PROFESSIONAL OF RECORD	ECL
PROJECT MANAGER	MS
DESIGNER	RM
CEI PROJECT NUMBER	31672
DATE	5/5/2025
REVISION	REV-7

GRADING PLAN  
SHEET TITLE  
SHEET NUMBER



**LEGAL DESCRIPTION**

REFERENCE 01 - COVER SHEET FOR LEGAL DESCRIPTION.

**BENCHMARK**

DOUGLAS CONTROL MONUMENT #1.095035, A 3" ALUMINUM CAP.  
ELEVATION = 5906.34 FEET (NAVD1988), AS PUBLISHED BY DOUGLAS COUNTY

**BASIS OF BEARINGS**

THE BEARINGS ARE BASED ON THE WEST ROW LINE OF SOUTH PARKER ROAD ASSUMED TO BEAR S23°56'20"E BETWEEN MONUMENTS FOUND AND DESCRIBED HEREON.

**FLOOD ZONE INFORMATION**

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", AREAS OF MINIMAL FLOOD HAZARD, AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM.  
MAP NUMBER: 0855500876  
EFFECTIVE DATE: MARCH 16, 2016

**NOTE:**

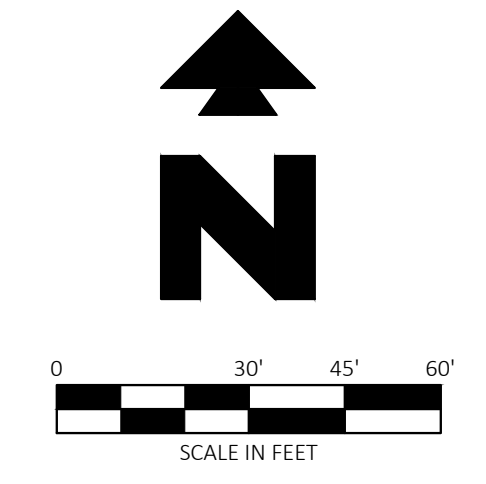
SEE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF PORCHES, RAMPS, VESTIBULE, SLOPED PAVING, TRUCK DOCKS, BUILDING UTILITY ENTRANCE LOCATIONS AND PRECISE BUILDING DIMENSIONS.

**GENERAL UTILITY NOTES**

- A. ALL WATER LINES SHALL HAVE 4'-6" MIN. COVER.
- B. ALL SANITARY SEWER LINES 6" AND SMALLER SHALL BE PVC (SDR35) WITH 4'-6" MIN. COVER.
- C. CONTRACTOR SHALL COORDINATE ANY DISRUPTIONS TO EXISTING UTILITY SERVICES WITH ADJACENT PROPERTY OWNERS.
- D. ALL ELECTRIC, TELEPHONE AND GAS EXTENSIONS INCLUDING SERVICE LINES SHALL BE CONSTRUCTED TO THE APPROPRIATE UTILITY COMPANY SPECIFICATIONS. ALL UTILITY DISCONNECTIONS SHALL BE COORDINATED WITH THE DESIGNATED UTILITY COMPANIES.
- E. CONSTRUCTION SHALL NOT START ON ANY PUBLIC UTILITY SYSTEM UNTIL WRITTEN APPROVAL HAS BEEN RECEIVED BY THE ENGINEER FROM THE APPROPRIATE GOVERNING AUTHORITY AND CONTRACTOR HAS BEEN NOTIFIED BY THE ENGINEER.
- F. PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM CEI ENGINEERING AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. CEI ENGINEERING AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.
- G. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON OR WITHIN THE PROJECT CONTRACT REQUIREMENTS OR SPECIFICATIONS OF THE LOCAL AUTHORITIES:  
REFERENCE DISTRICT POLICIES & INSTALLATION NOTES FOR WATER SERVICE DETAIL W3.1  
ALL WATER LINE FITTINGS SHALL BE INSTALLED WITH THRUST BLOCKING PER W4.1.  
ALL SANITARY SEWER PIPE TRENCHING & BEDDING SHALL BE INSTALLED PER S4.1-S4.5.  
REFERENCE DISTRICT POLICIES & INSTALLATION NOTES FOR SEWER SERVICE DETAIL S1.1.
- H. ALL UTILITIES SHOULD BE KEPT TEN (10') APART (PARALLEL) OR WHEN CROSSING 18" VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE).
- I. CONTRACTOR SHALL MAINTAIN A MINIMUM COVER ON ALL WATERLINES.
- J. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATER LINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATER LINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18" CLEARANCE. MEETING REQUIREMENTS OF ANSI A21.10 OR ANSI 21.11 (AWWA C-151) (CLASS 50).
- K. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
- L. REFER TO INTERIOR PLUMBING DRAWINGS FOR TIE-IN OF ALL UTILITIES.
- M. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
- N. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
- O. REFER TO ELECTRIC COMPANY PLANS FOR ELECTRIC SERVICE DESIGN.
- P. REFER TO TELEPHONE PLANS FOR TELEPHONE & DATA SERVICE DESIGN.



Know what's below.  
Call before you dig.



**EXISTING LEGEND**

- PROPERTY LINE/RIGHT OF WAY LINE
- ⊙ COMMUNICATIONS MANHOLE
- ⊙ SANITARY SEWER MANHOLE
- ⊙ STORM SEWER MANHOLE
- GAS — UNDERGROUND GAS LINES
- COM — UNDERGROUND COMMUNICATIONS LINES
- STM — UNDERGROUND STORM SEWER LINES

**PROPOSED LEGEND**

- PROPERTY LINE/RIGHT OF WAY LINE
- STORM DRAIN
- X"G — GAS SERVICE
- X"SS — SANITARY SEWER SERVICE
- UGE — UNDERGROUND ELECTRIC SERVICE
- UGT — UNDERGROUND TELEPHONE SERVICE
- X"W — WATER SERVICE
- FDC FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT

**UTILITY NOTES**

- 22A POINT OF CONNECTION - WATER SERVICE PER LOCAL CODE STANDARDS
- 22C M.J. GATE VALVE WITH ADJUSTABLE VALVE BOX (SEE SIZES THIS SHEET)
- 22E M.J. REDUCER (SEE SIZES THIS SHEET)
- 22G 90° M.J. BEND WITH THRUST BLOCKING (SEE SIZES THIS SHEET)
- 22H 45° M.J. BEND WITH THRUST BLOCKING (SEE SIZES THIS SHEET)
- 22I 22.5° M.J. BEND WITH THRUST BLOCKING (SEE SIZES THIS SHEET)
- 22K SPRINKLER ENTRY PER ARCH. PLANS
- 22L METERED DOMESTIC WATER SERVICE ENTRY PER ARCH. PLANS (SEE SIZES THIS SHEET)
- 22M INTERNAL WATER METER (PER LOCAL CODES AND SPECIFICATION) (REF ARCH PLANS)
- 23A POINT OF CONNECTION FOR SANITARY SEWER
- 23D BUILDING SANITARY SEWER SERVICE CLEAN-OUT
- 23E SANITARY SEWER SERVICE ENTRY (PER ARCH. PLANS)
- 23F ADJUST RIM TO MATCH FINISH GRADE
- 23K SANITARY SEWER SERVICE WYE (PER LOCAL CODES)
- 24A POINT OF CONNECTION FOR ELECTRICAL SERVICE (PER ELECTRIC COMPANY REQUIREMENTS)
- 24D PROPOSED ELECTRIC TRANSFORMER
- 27A POINT OF CONNECTION FOR GAS SERVICE (PER LOCAL GAS COMPANY REQUIREMENT)
- 29A MAINTAIN MINIMUM 18" VERTICAL SEPARATION
- 31A LOCATION FOR THIS UTILITY AS SHOWN IS FOR DRAWING PURPOSES ONLY. CONTRACTOR SHALL VERIFY THE EXACT LOCATION IN FIELD PRIOR TO THE CONSTRUCTION OF THE PROPOSED UTILITY LINE TO BE CONNECTED. CONTRACTOR SHALL NOTIFY CEI ENGINEERING IF THE DESIGN AS SHOWN IS NOT ACHIEVABLE.
- 76A UNDERGROUND ELECTRICAL SERVICE ENTRY (PER ARCH PLANS) (REF ELECTRICAL SCHEMATIC PLANS FOR ELECTRIC SERVICE CONSTRUCTION INFORMATION)
- 76B UNDERGROUND TELEPHONE SERVICE ENTRY (PER ARCH PLANS) (REF TELEPHONE CO. SCHEMATIC PLANS FOR TELEPHONE SERVICE CONSTRUCTION INFORMATION)
- 76C INTERNAL FIRE SPRINKLER RISER WITH WALL MOUNT FIRE DEPARTMENT CONNECTION (FDC). REF MECHANICAL PLANS
- 76D CURB STOP VALVE REF TOWN OF PARKER DETAILS AND SPECIFICATIONS.
- 76F 22.5° BEND
- 76I RECLAIM SYSTEM (REF PLUMBING PLANS)
- 76K SAND/OIL SEPARATOR (REF PLUMBING PLAN)
- 76M REF PLUMBING PLANS FOR CONTINUATION
- 76N GAS SERVICE ENTRY (PER ARCH. PLANS)
- 76U ELECTRICAL TRANSFORMER PADS AND TRANSFORMERS (PER ELEC. CO.)

**UTILITY DETAILS** (REF CONSTRUCTION DOCUMENTS FOR DETAILS)

- 40C SANITARY SEWER CLEAN OUT
- 76P OUTSIDE SETTING FOR 2" - 1" METER PER TOWN OF PARKER DETAIL W5.10
- 76Q REDUCED PRESSURE BACKFLOW PER TOWN OF PARKER DETAIL W6.1.
- 76R SAMPLING MANHOLE PER TOWN OF PARKER DETAIL S5.3.
- 76S FIRE HYDRANT PER TOWN OF PARKER DETAIL W2.5.
- 76T LOCATOR WIRE PER TOWN OF PARKER DETAIL W2.6



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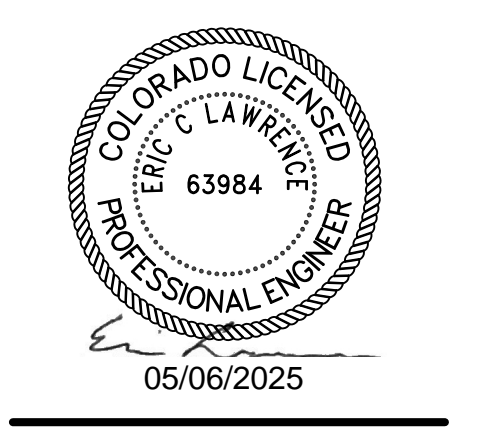


PLANS PREPARED FOR  
QUICK N CLEAN  
7291 E. ADOBE DRIVE, SUITE 115  
SCOTTSDALE, AZ 85255  
PHONE: (480) 707-3531

**REVISION**

NO.	DESCRIPTION	DATE

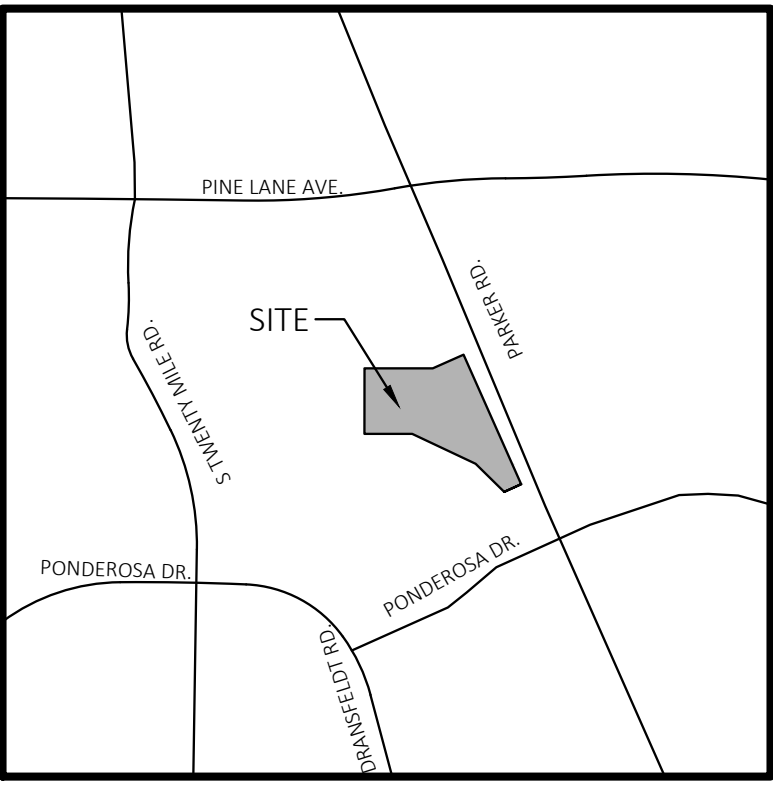
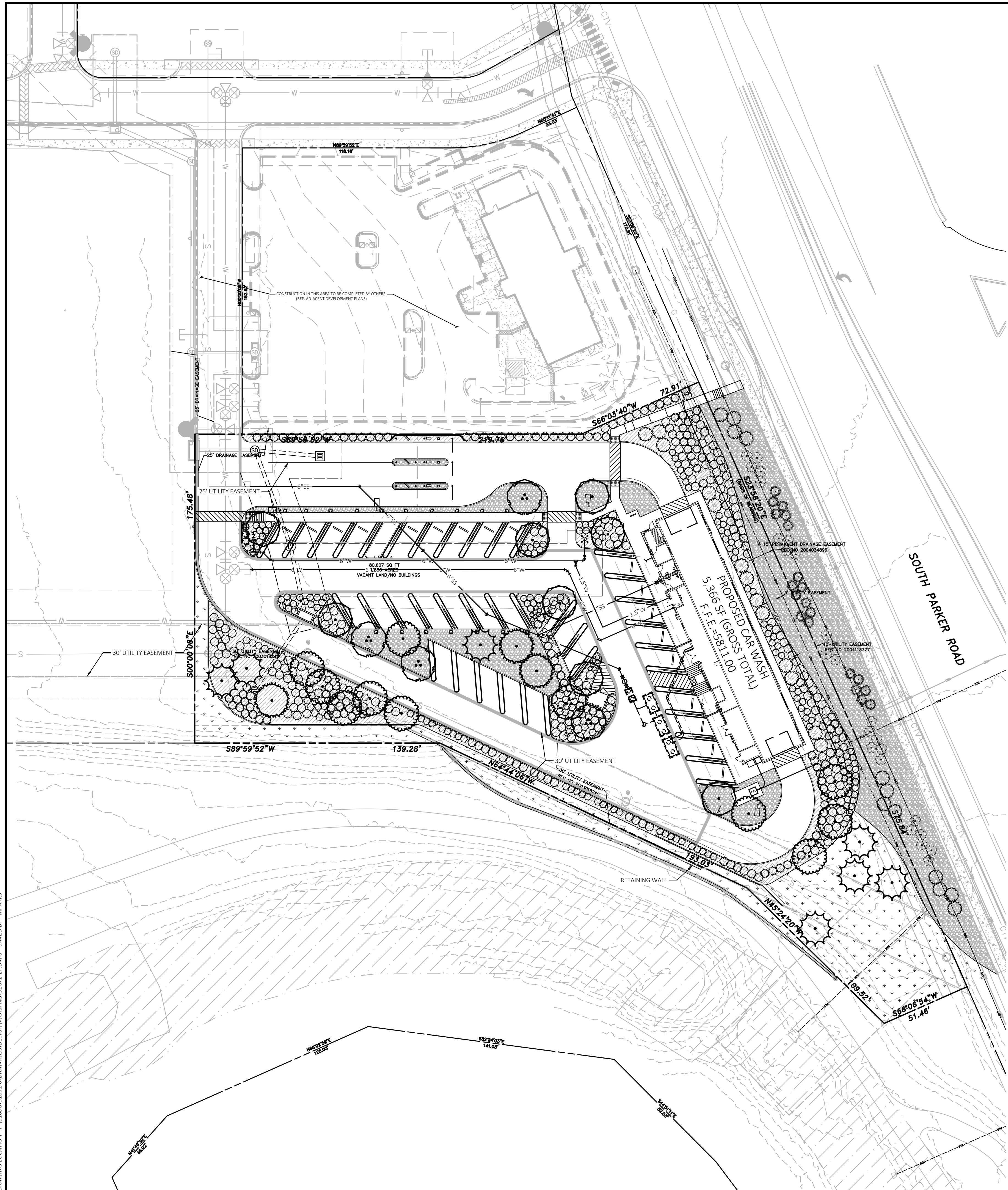
PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO



PROFESSIONAL OF RECORD	ECL
PROJECT MANAGER	MS
DESIGNER	RM
CEI PROJECT NUMBER	31672
DATE	5/5/2025
REVISION	REV-7

UTILITY PLAN  
SHEET TITLE  
SHEET NUMBER

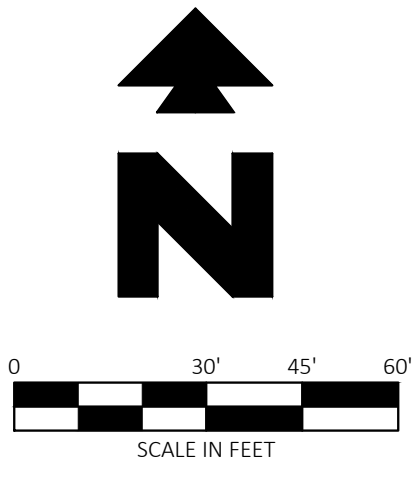
05 OF 07



**Vicinity Map**  
Not to Scale



Know what's below.  
Call before you dig.



**PROPOSED LEGEND**

- BOUNDARY LINE
- - - RIGHT OF WAY LINE
- - - - STORM DRAIN
- TYPICAL PLANTING WITH QUANTITY AND KEY (SEE PLANT LIST)

**PROPOSED LEGEND**

- 50A TREE PLANTING DETAIL
- 50B SHRUB PLANTING DETAIL
- 50Q STEEL EDGING DETAIL

**LANDSCAPE REQUIREMENTS**

AREA	REQUIREMENT	REQUIRED	PROVIDED
LANDSCAPE AREA	A MIN OF 15% OF THE TOTAL DEVELOPED AREA SHALL BE DEDICATED TO LANDSCAPE	80,607 x 15% = 12,091 SF OF LANDSCAPE AREA REQUIRED	38,246 SF PROVIDED
	1 TREE AND 5 SHRUBS SHALL BE PLANTED PER 1,500 SF OF LANDSCAPED LOT AREA 25% - 50% OF REQUIRED TREES SHALL BE EVERGREEN	12,091 / 1,500 = 8 TREES AND 40 SHRUBS REQUIRED 2 - 4 TREES SHALL BE EVERGREEN	8 TREES AND 40 SHRUBS PROVIDED 10 EVERGREEN TREES PROVIDED
PARKING LOT PERIMETER	A MIN 10' BUFFER SHALL BE PROVIDED ADJACENT TO ROADWAYS, RESIDENTIAL USES, NONCOMPATIBLE USES OR OPEN SPACE	REQUIRED	PROVIDED
PARKING LOT INTERIOR LANDSCAPE	AN AREA EQUAL TO 10% OF THE TOTAL PARKING AREA SHALL BE DEDICATED TO LANDSCAPE	45,364 SF x 10 = 4,536 SF OF LANDSCAPE AREA REQUIRED	5,648 SF PROVIDED
	1 TREE SHALL AND 5 SHRUBS SHALL BE PLANTED PER LANDSCAPE ISLAND 1 ADDITIONAL SHRUB SHALL BE PLANTED FOR EACH ADDITIONAL 15 SF ABOVE 162 SF IN EACH LANDSCAPE ISLAND	6 TREES AND 30 SHRUBS REQUIRED	8 TREES AND 30 SHRUBS PROVIDED
SITE PERIMETER LANDSCAPE	1 TREE AND 5 SHRUBS SHALL BE PLANTED PER 40 LF OF SITE PERIMETER	665 LF OF PERIMETER / 40 = 17 TREES AND 84 SHRUBS REQUIRED	17 TREES AND 84 SHRUBS PROVIDED
	TOTAL NUMBER OF TREES AND SHRUBS PROVIDED		33 TREES PROVIDED 548 SHRUBS PROVIDED

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**TREE SCHEDULE**

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	DETAIL	INSTALL HT.	MATURE HT.	CAL.
<b>TREES</b>							
	5	BETULA OCCIDENTALIS / WATER BIRCH	B & B	50A		40'	2.50" CAL.
	8	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER' / SHADEMASTER LOCUST	B & B	50A		50'	2.50" CAL.
	7	PICEA PLUNGENS / COLORADO SPRUCE	B & B	50A	6'-8" MIN	50'	
	3	PINUS EDULIS / PINON PINE	B & B	50A	6'-8" MIN	25'	
	10	TILIA CORDATA 'GREENSPIRE' / GREENSPIRE LINDEN	B & B	50A		50'	2.50" CAL.

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**SHRUB SCHEDULE**

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	DETAIL	MATURE HT.
<b>SHRUBS</b>					
	25	BUDDLEIA DAVIDI 'BLACK KNIGHT' / BLACK KNIGHT BUTTERFLY BUSH	5 GAL	50B	6'
	85	CORNUS SERICEA 'ARCTIC FIRE' / ARCTIC FIRE DOGWOOD	5 GAL	50B	4'
	25	FORESTIERA NEOMEXICANA 'HAPPY BOY' / HAPPY BOY NEW MEXICO PRIVET	5 GAL	50B	12'
	150	JUNIPERUS CHINENSIS 'ARMSTRONGII' / ARMSTRONG JUNIPER	5 GAL	50B	4'
	106	JUNIPERUS HORIZONTALIS 'ANDORRA' / ANDORRA JUNIPER	5 GAL	50B	2'
	20	JUNIPERUS VIRGINIANA 'GREY OWL' / GREY OWL EASTERN REDCEDAR	5 GAL	50B	3'
	3	PEROVSKIA ABROTANOIDES / RUSSIAN SAGE	5 GAL	50B	4'
	200	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	5 GAL	50B	2'
	14	RUDEBECKIA FULGIDA 'GOLDSTURM' / GOLDSTURM CONEFLOWER	5 GAL	50B	3'

**LANDSCAPE MATERIALS LEGEND**

GROUND COVERS	QTY	NAME	TYPE
	+/- 13,887 SF	4" DEPTH 2" - 3" WASHED GRANITE ROCK MULCH COLOR: BROWN/TAN	
	+/- 14,801 SF	3" - 6" RIVER ROCK COBBLE (4" - 6" DEPTH) COLOR: BROWN/TAN	
	+/- 12,297 SF	SEED MIX OF 40% CREASTED WHEATGRASS, 40% PERENNIAL RYEGRASS, 10% SWITCHGRASS, 5% BLUE GRAMA (COATED), AND 5% SIDEOATS GRAMA @ 3 LBS PER 1000 SF	SEED



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PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO



PROFESSIONAL OF RECORD ECL  
PROJECT MANAGER MS  
DESIGNER RM  
CEI PROJECT NUMBER 31672  
DATE 5/7/2025  
REVISION REV-7

LANDSCAPE PLAN  
SHEET TITLE  
SHEET NUMBER

DRAWING LOCATION: P:\31000\31672\DRAWINGS\DESIGN\WORKING\31672-1P.DWG. SAVED BY: JHPARKS

**GENERAL NOTES**

- CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL PROPOSED LANDSCAPING IS INSTALLED IN ACCORDANCE WITH PLANS, DETAILS, SPECIFICATIONS (IF APPLICABLE) AND ALL LOCAL CODES AND REQUIREMENTS.
- CONTRACTOR TO INSPECT SITE AND VERIFY CONDITIONS AND DIMENSIONING PRIOR TO PROCEEDING WITH WORK DESCRIBED HERE IN. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO BEGINNING ANY CONSTRUCTION.
- QUANTITIES PROVIDED IN THE PLANT LIST ARE FOR GENERAL USE ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL PLANT AND LANDSCAPE MATERIAL QUANTITIES. SYMBOL COUNT ON PLAN TAKES PRECEDENCE OVER TABLE QUANTITIES.
- IMMEDIATELY AFTER AWARD OF CONTRACT, NOTIFY THE OWNER'S REPRESENTATIVE AND/OR THE LANDSCAPE ARCHITECT OF UNAVAILABILITY OF SPECIFIED PLANT MATERIAL FROM COMMERCIAL NURSERIES. THE OWNER'S REPRESENTATIVE AND/OR LANDSCAPE ARCHITECT WILL PROVIDE ALTERNATE PLANT MATERIAL SELECTIONS IF UNAVAILABILITY OCCURS. SUCH CHANGES SHALL NOT ALTER THE ORIGINAL BID PRICE UNLESS A CREDIT IS DUE TO THE OWNER.
- ALL PLANT MATERIALS TO CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1.
- CONTAINER GROWN STOCK SHOULD HAVE GROWN IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL TOGETHER.
- ANY PLANT SUBSTITUTIONS, RELOCATION, OR REQUIRED CHANGE SHALL REQUIRE THE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT OR OWNER.
- THE OWNER'S REPRESENTATIVE AND/OR LANDSCAPE ARCHITECT RESERVE THE RIGHT TO REFUSE ANY MATERIAL THEY DEEM UNACCEPTABLE.
- COORDINATE WITH PROJECT REPRESENTATIVE FOR DISTURBED SITE TREATMENTS OUTSIDE LANDSCAPE IMPROVEMENTS. SEE CIVIL PLANS FOR SOIL STABILIZATION FOR EROSION CONTROL.
- IF REQUIRED, CONTRACTOR TO ENSURE THAT AN AUTOMATED IRRIGATION SYSTEM THAT PROVIDES COMPLETE COVERAGE OF THE SITE IS INSTALLED PRIOR TO INSTALLING TREES/PALMS (SEE IRRIGATION PLAN SHEET IF PROVIDED). IF NO PLAN IS PROVIDED THE CONTRACTOR SHALL SUBMIT A PROPOSED DESIGN TO THE LANDSCAPE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. THE PROPOSED DESIGN MUST HAVE AN APPROVED BACKFLOW DEVICE AND RAIN SENSOR INSTALLED TO STOP IRRIGATION DURING RAIN EVENTS. CONTRACTOR SHALL ENSURE THAT THERE IS POSITIVE DRAINAGE AND NO PONDING OF WATER AT ROOT AREA.
- ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED/SODDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY RELOCATED TREES SHALL BE MAINTAINED UNTIL SUCH POINT AS TREE IS RE-ESTABLISHED. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR 1) TO VERIFY THE LOCATIONS OF UTILITY LINES AND ADJACENT TO THE WORK AREA 2) TO PROTECT OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD 3) TO REPAIR ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE CONSTRUCTION AT NO COST TO THE OWNER.
- WEED MAT IS REQUIRED IN LANDSCAPED ISLANDS AS SPECIFIED.
- ALL PLANT MATERIAL QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE COVERAGE OF ALL PLANTING BEDS AT SPACING SHOWN.
- IF A SWPPP PLAN IS PROVIDED THIS PLAN IS TO BE IMPLEMENTED COOPERATIVELY WITH SWPPP PLAN, AS NEEDED, TO MAXIMIZE THE EFFECTIVENESS OF THE SWPPP PLAN FOR THIS SITE.
- THE CONTRACTOR IS ENCOURAGED TO COMPLETE TEMPORARY OR PERMANENT SEEDING OR SODDING IN STAGES FOR SOIL STABILIZATION AS AREAS ARE COMPLETED AFTER GRADING.
- ALL DISTURBED AREAS AS DESIGNATED ON THE GRADING PLAN SHALL BE SOWN WITH GRASS SEED MIX OF 40% KENTUCKY BLUEGRASS, 40% TALL FESCUE, 20% PERENNIAL RYEGRASS BY WEIGHT @ 3 LBS / 1000 SF.
- SEEDING ON SLOPES: HYDROSEED WITH GRASS SEED AS INDICATED ON PLANS. SEE LEGEND FOR SPECIFIC GRASS SEED TYPE. SEEDING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER BED PREPARATION. HYDROSEED MIXTURE SHALL CONTAIN CELLULOSE MULCH APPLIED AT A RATE OF 2,000 LBS/ACRE, WITH A MAXIMUM OF 50 LBS/100 GAL. OF WATER. IF SEEDING IS DELAYED AFTER MIXING 1/2 - 2 HOURS ADD AN ADDITIONAL 50% OF SEED MIX. IF DELAY IS LONGER THAN 2 HOURS, BEGIN WITH NEW MIXTURE. ALL SLOPES 2:1 OR GREATER SHALL BE COVERED WITH EROSION CONTROL BLANKET AS SHOWN IN THE EROSION CONTROL BLANKET DETAIL. SEE SPECIFICATIONS FOR SEED ESTABLISHMENT REQUIREMENTS.
- ALL PLANT MATERIAL IN TREE HOLDING AREAS SHALL BE MANUALLY WATERED/IRRIGATED TO KEEP MOIST UNTIL PLANTED.
- THE LANDSCAPE CONTRACTOR SHALL HAVE A SOILS ANALYSIS TEST CONDUCTED ON THE SITE PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE SOIL SAMPLING AND SUBMITTING THE SAMPLES TO A SOILS TESTING LAB FOR RESULTS. THIS WILL INCLUDE A SEPARATE LAB TEST REPORT AND RECOMMENDATIONS (AMENDMENTS/FERTILIZER AMOUNTS AND APPLICATION RATES) FOR EACH TYPE OF PROPOSED LANDSCAPING (SHRUBS, SOD, TREES). THE SOILS LAB RESULTS AND RECOMMENDATIONS ARE REQUIRED TO BE REVIEWED AND APPROVED BY THE DESIGN LANDSCAPE ARCHITECT PRIOR TO INSTALLING ANY LANDSCAPING MATERIALS ONSITE.

**PLANTING NOTES**

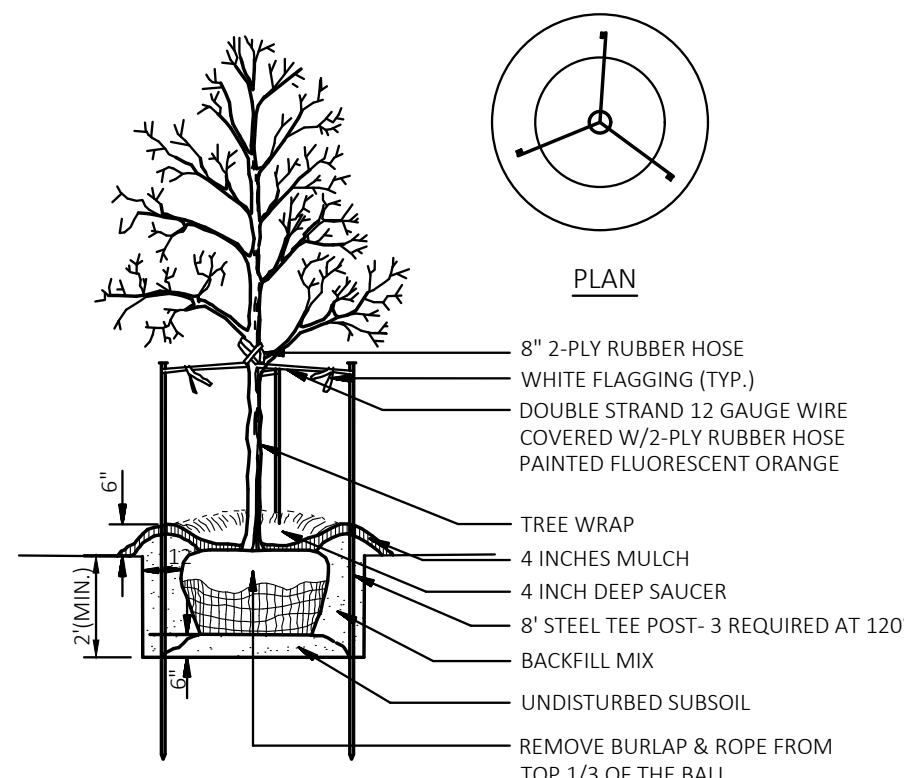
- LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING ALL PLANTED AREAS. ALL DELETERIOUS MATERIALS SUCH AS ROCK, TRASH, CONSTRUCTION DEBRIS, AGGREGATE BASE MATERIAL, ASPHALT, ETC. SHALL BE REMOVED PRIOR TO ANY FILL OPERATIONS. FILL ALL PLANTING AREAS WITH CLEAN EARTHEN FILL. SOIL SHALL BE FREE OF HEAVY, STIFF CLAY AND ANY DELETERIOUS MATERIAL OVER ONE INCH IN SIZE. THE TOP SIX INCHES OF FILL MATERIAL STRIPPED FROM SITE MAY BE UTILIZED FOR PLANTER OR TOPSOIL FILL IF PRIOR APPROVAL HAS BEEN OBTAINED FROM THE OWNER'S REPRESENTATIVE AND/OR LANDSCAPE ARCHITECT.
- FINISH GRADE OF LANDSCAPE AREAS (TOP OF TURF AND MULCH) MUST BE GRADED TO 1 1/2" BELOW ADJACENT PAVEMENT SURFACES.
- LOCATE SHRUBS A DISTANCE OF HALF OF THEIR AVERAGE MATURE SPREAD AWAY FROM WALKS, STRUCTURES, CONCRETE PADS, ETC. LOCATE GROUND COVER PLANTINGS A MINIMUM OF 2' FROM WALKS, STRUCTURES, CONCRETE PADS, ETC.
- ALL LAWN AREAS NOT OTHERWISE BORDERED BY WALKS, OR OTHER STRUCTURES, SHALL HAVE MANUFACTURED EDGING AS REQUIRED.
- TREES PLANTED ADJACENT TO PUBLIC ROADS AND PEDESTRIAN SIDEWALKS SHALL BE PRUNED SUFFICIENTLY TO AVOID VISUAL BLOCKS TO INTERSECTING VEHICULAR ACCESS OR INTERFERENCE WITH PEDESTRIAN WALKWAYS. TREES WITH A 4" OR LARGER CALIPER SHALL BE PRUNED UP TO 6'-0" ABOVE PAVEMENTS.
- ALL TREES WITHIN 4' OF PAVED SURFACES (SUCH AS CURBS, WALLS, BUILDINGS AND SIDEWALKS) SHALL BE PROVIDED WITH A DEEP ROOT BARRIER CONTROL DEVICE OR EQUAL. INSTALL PER MFR'S SPECIFICATIONS.
- TOPSOIL DEPTH SHALL BE AS FOLLOWS:  
PLANTER BEDS - 12" MINIMUM  
GRASS/SOD AREAS - 4" MINIMUM (AFTER COMPACTION)
- BACKFILL ALL TREES, SHRUBS, GROUND COVER WITH A MIXTURE OF 2 PARTS NATIVE SOIL AND 1 PART SOIL CONDITIONING WITH WOOD MULCH.
- THE LANDSCAPE CONTRACTOR SHALL WATER TEST ALL PLANTING HOLE PRIOR TO PLANTING. IF HOLES DO NOT DRAIN PROPERLY, EXCAVATE FURTHER UNTIL IMPERMEABLE LAYER IS BREACHED. EXCAVATED PLANT PITS SHALL HAVE POSITIVE DRAINAGE. PLANT PITS (WHEN FULLY FLOODED WITH WATER) SHALL DRAIN WITHIN 1 HOUR OF FILLING. ENSURE THAT ALL PLANT PITS HAVE POSITIVE DRAINAGE.
- ALL PLANTING BEDS SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE. PRE-EMERGENT HERBICIDE SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL OCCUR AFTER TOPSOIL PLACEMENT AND PRIOR TO INSTALLATION OF PLANT MATERIALS AND MULCH.
- FERTILIZE ALL PLANTS AT THE TIME OF PLANTING WITH A TIME RELEASE FERTILIZER PER BRAND'S SPECIFIED APPLICATION RATES.
- ALL PLANTING BED SOILS SHALL BE AMENDED WITH 2" OF ORGANIC COMPOST
- ALL TREES AND SHRUBS SHALL BE PLANTED IN SUCH A MANNER AS TO ENSURE THEIR SURVIVAL.
- ANY ROPE OR WIRE BINDING THE BALL SHALL BE CUT PRIOR TO PREVENT GIRDLING OF THE TREE. REMOVE WIRE, TWINE, AND BURLAP FROM THE TOP HALF OF ALL B&B PLANT MATERIAL.
- IF A NON-BIODEGRADABLE MATERIAL IS USED AROUND THE BALL, IT SHALL BE COMPLETELY REMOVED PRIOR TO BACKFILLING.
- PRIOR TO INSTALLATION, THE ROOTS OF CONTAINER GROWN STOCK SHALL BE SEPARATED OR SPLIT TO ENSURE PROPER ROOT DEVELOPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY SCHEDULE AND PROTECTION BETWEEN DELIVERY AND PLANTING TO MAINTAIN HEALTHY PLANT CONDITIONS.
- ANY PLANT MATERIAL WHICH IS DISEASED, DISTRESSED, DEAD, OR REJECTED (PRIOR TO SUBSTANTIAL COMPLETION) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS. TREES & SHRUBS SHALL BE PLANTED AS SOON AS POSSIBLE AFTER DELIVERY.
- ALL TREES MUST BE STRAIGHT-TRUNKED, FULL-HEADED AND MEET ALL REQUIREMENTS SPECIFIED.
- ALL TREES MUST BE STAKED AS SHOWN IN THE DETAILS.
- NO SUBSTITUTIONS OR ALTERNATIVES WILL BE ALLOWED FOR GROUND SURFACE MATERIALS UNLESS APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT OR OWNER.
- MAINTAIN 5' MIN. HORIZONTAL SEPARATION BETWEEN TREE PLANTINGS AND ALL UTILITIES UNLESS OTHERWISE SPECIFIED.
- A FOUR INCH (4") TOP DRESSING/MULCHING OF 2" - 3" WASHED GRANITE ROCK MULCH SHALL BE PLACED IN ALL PLANT BEDS AND AROUND ALL TREES. SINGLE TREES OR SHRUBS SHALL HAVE TOP DRESSING TO THE OUTSIDE EDGE OF THE MANUFACTURED EDGING OR LANDSCAPE ISLAND. (SEE PLANTING DETAIL) TOP DRESSINGS CAN BE WOOD MULCH, ROCK, OR ANY OTHER DECORATIVE MATERIAL SPECIFIED ON PLANS. SEE LANDSCAPE PLAN FOR TYPE.
- THE FOLLOWING PLANTING SEASONS ARE RECOMMENDED:  
EVERGREEN SHRUBBERY OCT-APR  
DECIDUOUS SHRUBBERY & TREES OCT-APR  
EVERGREEN TREES OCT-APR

**PLANT GUARANTEE, REPLACEMENT AND MAINTENANCE**

- GUARANTEE:  
ACCEPTANCE OF GRADING AND SEEDING SHALL BE BY LANDSCAPE ARCHITECT AND/OR OWNER. THE CONTRACTOR SHALL ASSUME MAINTENANCE RESPONSIBILITIES UNTIL FINAL ACCEPTANCE. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, RESEEDING AND OTHER OPERATIONS NECESSARY TO KEEP ALL LAWN AREAS IN A THRIVING CONDITION. UPON FINAL ACCEPTANCE, OWNER SHALL ASSUME ALL MAINTENANCE RESPONSIBILITIES. AFTER LAWN AREAS HAVE GERMINATED, AREAS WHICH FAIL TO SHOW A UNIFORM STAND OF GRASS FOR ANY REASON WHATSOEVER SHALL BE RE-SEEDED REPEATEDLY UNTIL ALL AREAS ARE COVERED WITH A SATISFACTORY STAND OF GRASS. MINIMUM ACCEPTANCE OF SEEDED LAWN AREAS MAY INCLUDE SCATTERED BARE SPOTS, NONE OF WHICH ARE LARGER THAN 1 SQUARE FOOT, AND WHEN COMBINED DO NOT EXCEED 2% OF TOTAL SEEDED LAWN AREA.
- REPLACEMENT:  
ANY PLANT UNDER THIS SPEC WHICH IS DEAD, MISSING, UNHEALTHY, OR OTHERWISE NOT ACCEPTABLE AND NOT IN SATISFACTORY GROWING CONDITION DURING CONSTRUCTION MAINTENANCE PERIOD, OR AT THE END OF THE GUARANTEE PERIOD, SHALL BE REMOVED FROM SITE AND REPLACED WITH SUITABLE, ACCEPTABLE PLANT AS SPECIFIED, WITHIN FIVE (5) DAYS.
- MAINTENANCE:  
GENERAL CONTRACTOR SHALL PROVIDE ONE YEAR OF LANDSCAPE MAINTENANCE, FROM THE TIME THE PROJECT RECEIVES THE CERTIFICATE OF OCCUPANCY AND THERE AFTER, FOR ALL NEW LANDSCAPE. IF EXISTING LANDSCAPE EXISTS ON-SITE, GENERAL CONTRACTOR IS TO PROVIDE THE OPTION OF MAINTENANCE FOR THE OWNER'S REVIEW.

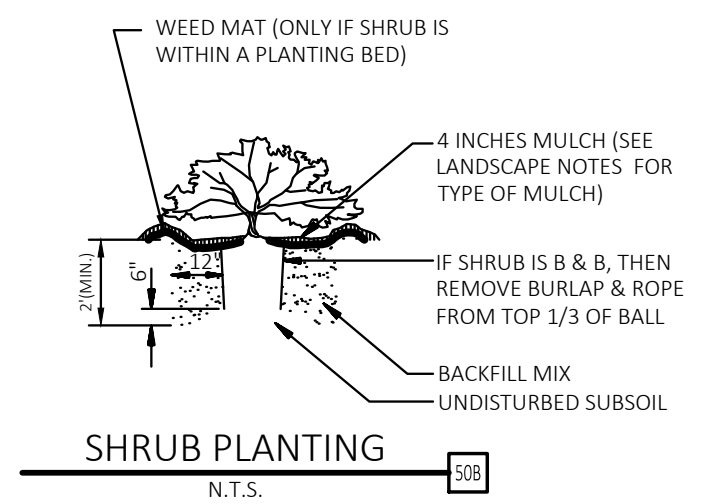
**HERBICIDES NOTES**

- APPLICATION OF HERBICIDES SHALL BE IN COMPLIANCE WITH STATE PESTICIDES REGULATIONS. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO CONSULT WITH THE REGULATORY AGENCIES FOR LOCAL HERBICIDES APPLICATION REQUIREMENTS.
- IF THERE IS A DISCREPANCY BETWEEN STATE REGULATIONS AND ADDITIONAL REQUIREMENTS BELOW, MOST STRINGENT SHALL RULE.
- NO AERIAL APPLICATION OF HERBICIDES IS PERMITTED ON SITE.
- CARCINOGENS AND EPA TOXIC CATEGORY I AND II ARE PROHIBITED TO USE ON SITE.

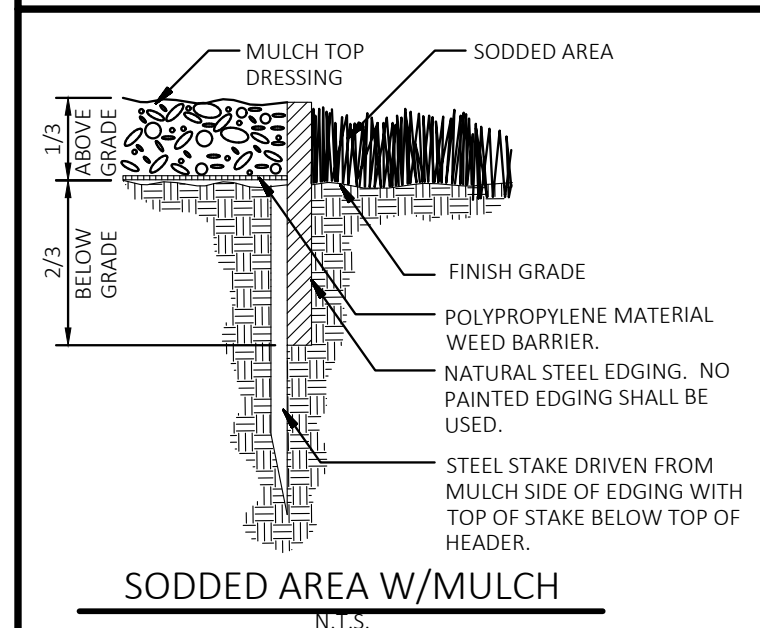


NOTE: SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.

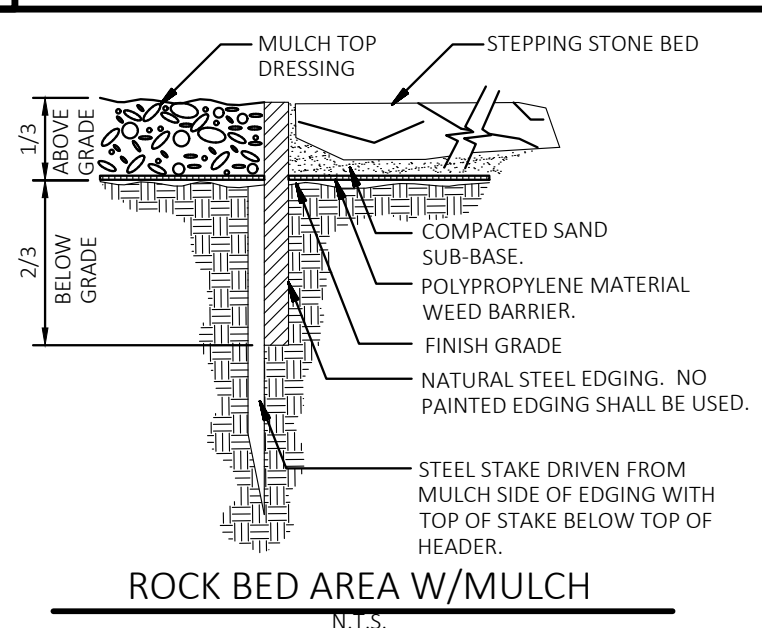
**TREE PLANTING**  
N.T.S.



**SHRUB PLANTING**  
N.T.S.



**SODDED AREA W/MULCH**  
N.T.S.



**ROCK BED AREA W/MULCH**  
N.T.S.



**STEEL EDGING**  
N.T.S.

DRAWING LOCATION: P:\33000\33072\DRAWINGS\DESIGN\WORKING\33072-10.DWG. SAVED BY: MPARKS



CEI ENGINEERING ASSOCIATES, INC.  
710 W. PINEDALE AVE.  
FRESNO, CA 93711  
PHONE: (559) 447-3119  
FAX: (559) 447-3129



CLIENT  
3K1 CONSULTING SERVICES, LLC.  
11811 N. TATUM BOULEVARD,  
PHOENIX, ARIZONA 85028  
PHONE: (602) 850-8101



PLANS PREPARED FOR  
QUICK N CLEAN  
7291 E. ADOBE DRIVE, SUITE 115  
SCOTTSDALE, AZ 85255  
PHONE: (480) 707-3531

**REVISION**

NO.	DESCRIPTION	DATE

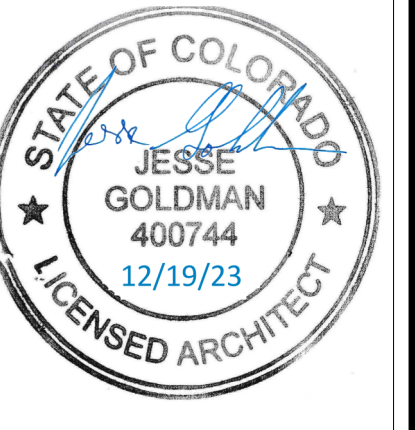
PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO



PROFESSIONAL OF RECORD	ECL
PROJECT MANAGER	MS
DESIGNER	RM
CEI PROJECT NUMBER	31672
DATE	5/7/2025
REVISION	REV-7

LANDSCAPE NOTES  
SHEET TITLE  
SHEET NUMBER

07 OF 07



JESSE GOLDMAN, ARCHITECT  
 2686 S COLORADO BLVD, SUITE 525  
 DENVER, CO 80222  
 (303) 962-9164

**QUICK N CLEAN CAR WASH**  
 9572 TWENTY MILE ROAD  
 PARKER, CO

2686 S COLORADO BLVD, SUITE 525  
 DENVER, CO 80222  
 (303) 962-9164  
 www.cshoa.com

**CSHOA**

PROJECT	DATE
20037.000	12-19-2023
DRAWN	CHECKED
RJ	JGM

REVISED  
 1 AGENCY COMMENTS 3/15/2023  
 2 AGENCY COMMENTS 7/28/2023

SHEET TITLE  
**EXTERIOR ELEVATIONS**

SHEET

**A5.1**  
 ORIGINAL SHEET SIZE  
 24" x 36"

**GENERAL NOTES:**

- A. THE REFERENCE ELEVATION MARKED WITH REPRESENTS VERTICAL HEIGHTS RELATIVE TO INTERIOR FLOOR DATUM ASSUMED AT 100'-0" RE: CIVIL FOR ACTUAL ELEVATION.
- B. ALL MATERIAL SYMBOLS ARE FOR REPRESENTATION ONLY. CONTRACTOR IS RESPONSIBLE FOR DETERMINING PROPER COURSING, ETC.
- C. LOCATION FOR ADDRESS SIGNAGE TO BE INSTALLED AS REQUIRED AND APPROVED BY THE CITY OF RIVERSIDE, CA.
- D. ALL COPING WILL EITHER MATCH A COMPLEMENTARY TRIM OR ACCENT COLOR. OR MATCH THE SURROUNDING PREDOMINATE COLOR TO BLEND. GC TO REQUEST COPY OF THE COLOR ELEVATIONS FROM ARCHITECT IF NOT PROVIDED BY OWNER.
- E. ALL ROOFTOP EQUIPMENT TO BE SCREENED BY WALLS OR EQUIPMENT SCREENS.
- F. GC TO CONFIRM EXTERIOR MATERIALS AND FINISHES WITH OWNER.

**MATERIAL LEGEND:**

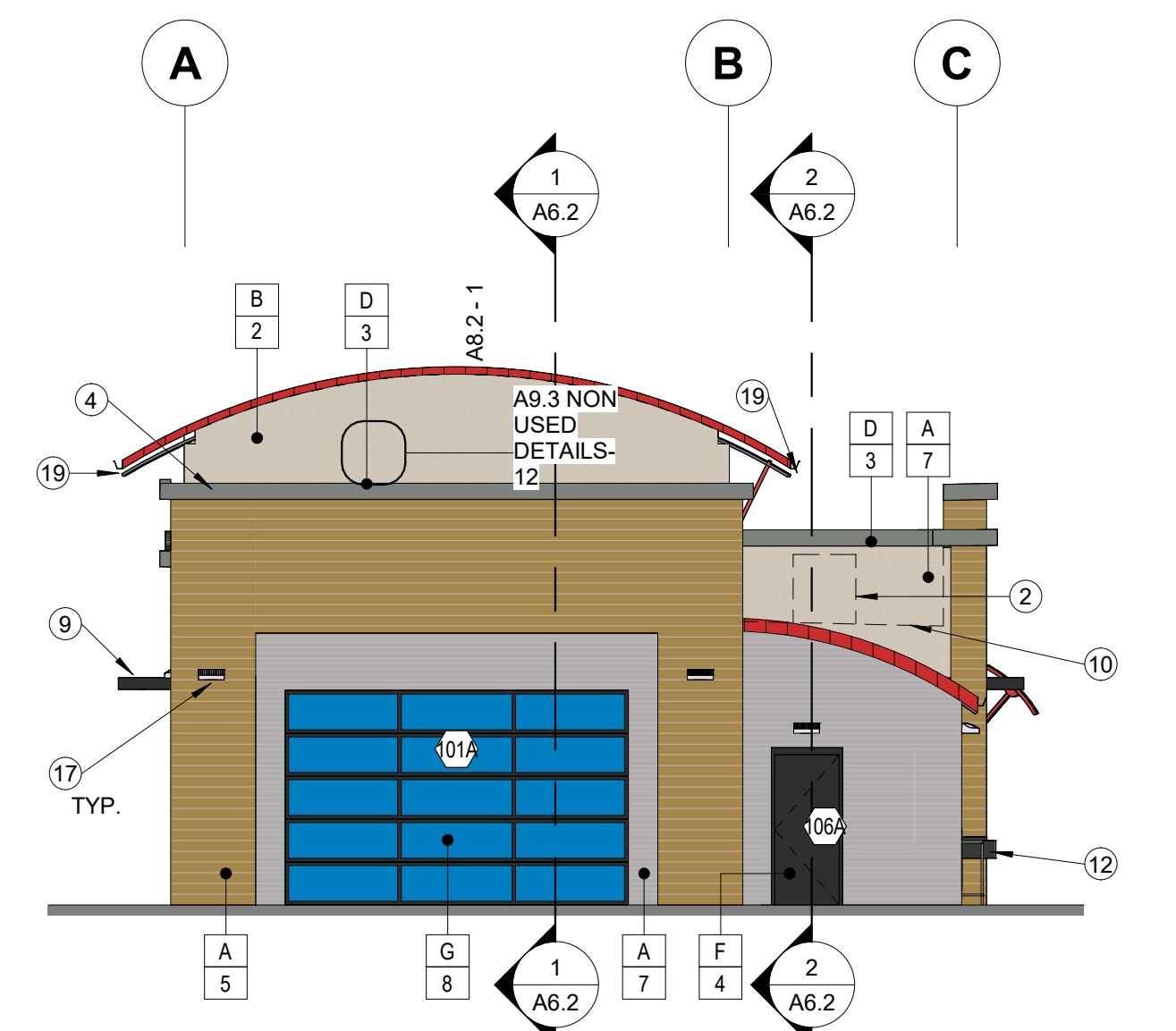
- |   |  |
|---|--|
| A | HARDIE BOARD SIDING  |
| B | STUCCO OVER 8"x16" CMU   |
| C | SINGLE-PLY MEMBRANE ROOFING WITH SURFACE APPLIED RIBBING FOR STANDING SEAM APPEARANCE. COLOR OF MEMBRANE AND RIBBING TO MATCH DARK BRONZE OR SIMILAR. VERIFY FINAL COLOR WITH OWNER. |
| D | METAL  |
| E | METAL AWNING   |
| F | ALUMINUM WINDOW FRAME  |
| G | CLEAR GLAZING  |
| H | BRICK VENEER   |

**COLOR LEGEND:**

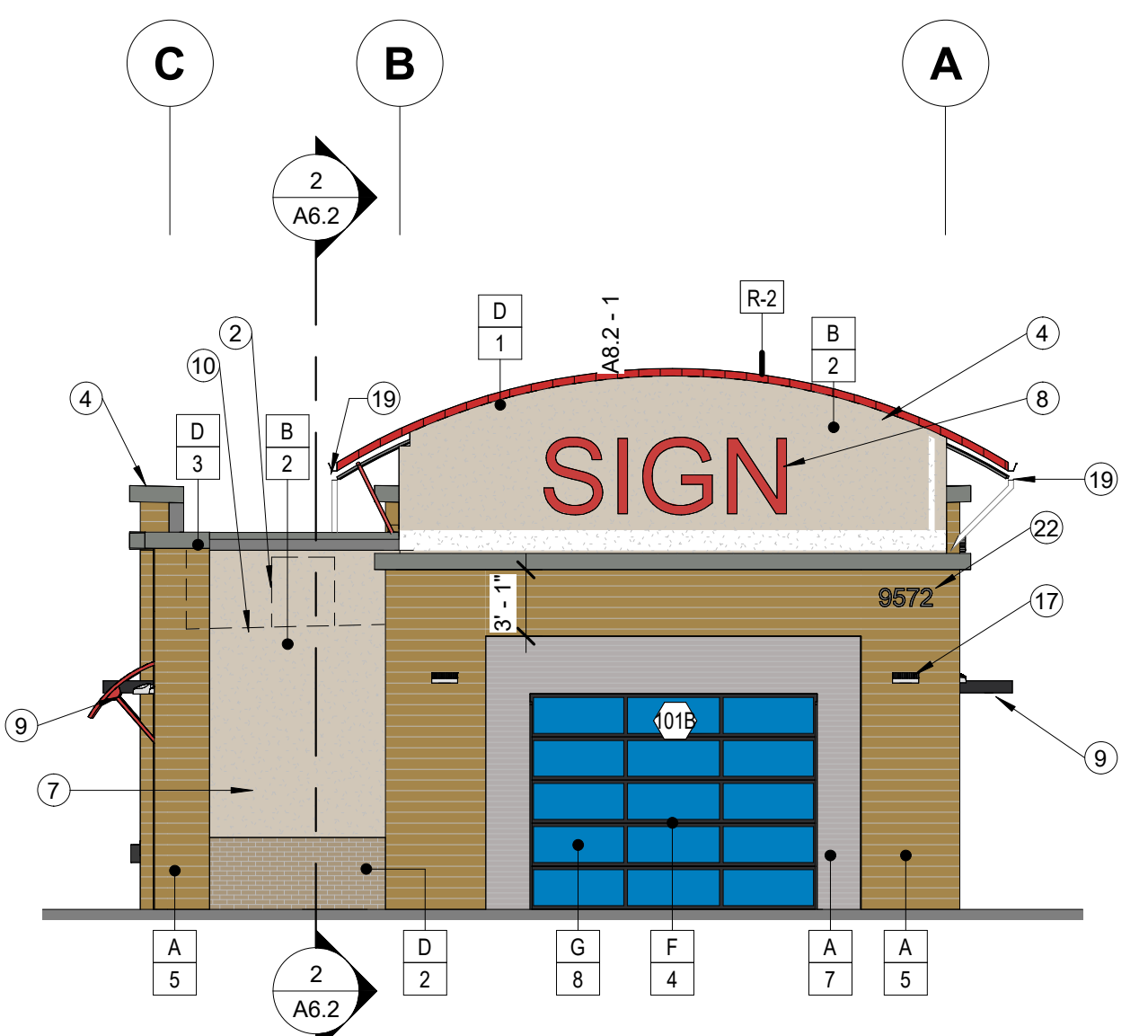
- |   |   |
|---|---|
| 1 | PAINT, BENJAMIN MOORE - RUBY RED 2001-01        |
| 2 | PAINT, SHERWIN WILLIAMS - ACCESSIBLE BEIGE 7036 |
| 3 | PAINT, SHERWIN WILLIAMS - BROWN TBD             |
| 4 | PAINT, SHERWIN WILLIAMS - CAVIAR 6990           |
| 5 | FINISH, HARDIE BOARD SIDING - KAHKI BROWN       |
| 6 | FINISH, GENERAL SHALE - PEPPERMILL              |
| 7 | FINISH, HARDIE BOARD SIDING - NIGHT GREY        |
| 8 | FINISH, VITRO GLASS SOLARBAN 70XL - CLEAR GLASS |

**SHEET NOTES:**

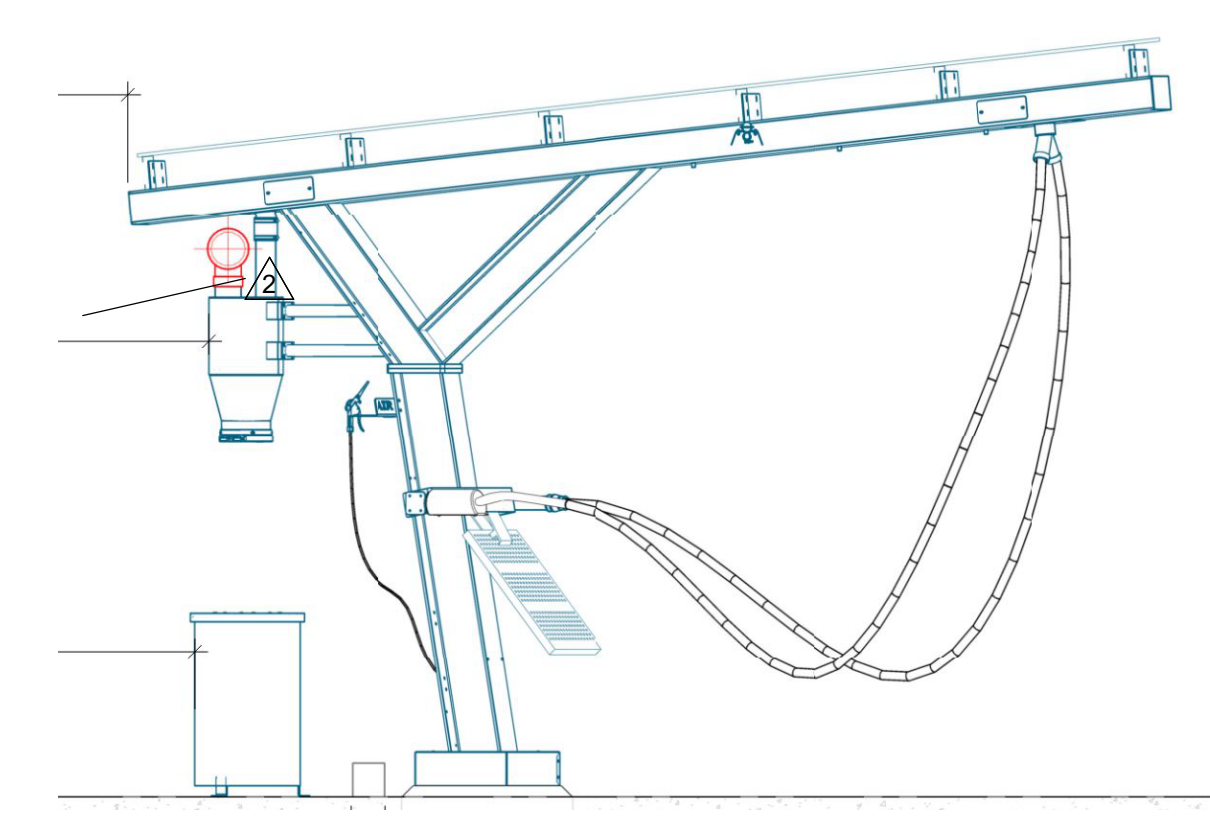
1. VENDING MACHINE BEYOND, OWNER FURNISHED AND OWNER INSTALLED. G.C. TO VERIFY SIZE OF EQUIPMENT WITH OWNER PRIOR TO CONSTRUCTING OPENING.
2. SCREENED MECHANICAL EQUIPMENT, C/W MECHANICAL DRAWINGS. RE: WALL SECTION
3. EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 8'-0" A.F.F., RE: ELECTRICAL
4. METAL FLASHING/COPING, RE: COPING DETAILS, G.C TO VERIFY FINAL PAINT COLOR WITH OWNER.
5. MECHANICAL LOUVER, C/W MECHANICAL DRAWINGS. GC TO PREVIEW WITH CARWASH EQUIPMENT PROVIDER CLEARANCE IN/OVER LOUVERS. PAINT TO MATCH ADJACENT SURFACE
6. SERVICE SINK, C/W PLUMBING DRAWINGS.
7. ELECTRICAL SERVICE ENTRANCE SECTION (SES), PAINT.
8. SIGN PACKAGE BY OTHERS AND APPROVED UNDER SEPARATE PERMIT. COORDINATE POWER REQUIREMENTS AND BLOCKING IF REQ'D.
9. CANOPY, RE: DETAILS
10. HIDDEN LINE OF ROOF BEYOND.
11. ROOF OVERFLOW DRAIN DISCHARGE, RE: A7.3 - 11 & 12 AND PLUMBING.
12. HI-LO DRINKING FOUNTAINS RE: PLUMBING AND DETAILS A7.1-16.
13. PAINTED LOGO, COORDINATE SPECIFICS WITH OWNER.
14. KNOX BOX - INSTALL IN LOCATION DIRECTED BY FIRE DEPARTMENT.
15. CONTROL JOINT. SPACE EQUALLY WITHIN BAYS, ALIGN WITH PILASTERS, AND/OR ALIGN WITH OPENINGS.
16. EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 10'-6" A.F.F., RE: ELECTRICAL.
17. EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 9'-6" A.F.F., RE: ELECTRICAL.
18. EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 7'-8" A.F.F., RE: ELECTRICAL.
19. GUTTER AND DOWNSPOUT.
20. BREAK METAL, RE: DETAILS. MATCH COLOR AND FINISH OF ADJACENT METAL PANEL.
21. ELECTRICAL PANELS RE: ELECTRICAL
22. PIN MOUNTED ADDRESS SIGNAGE BY OWNER, MIN. 10-INCHES TALL



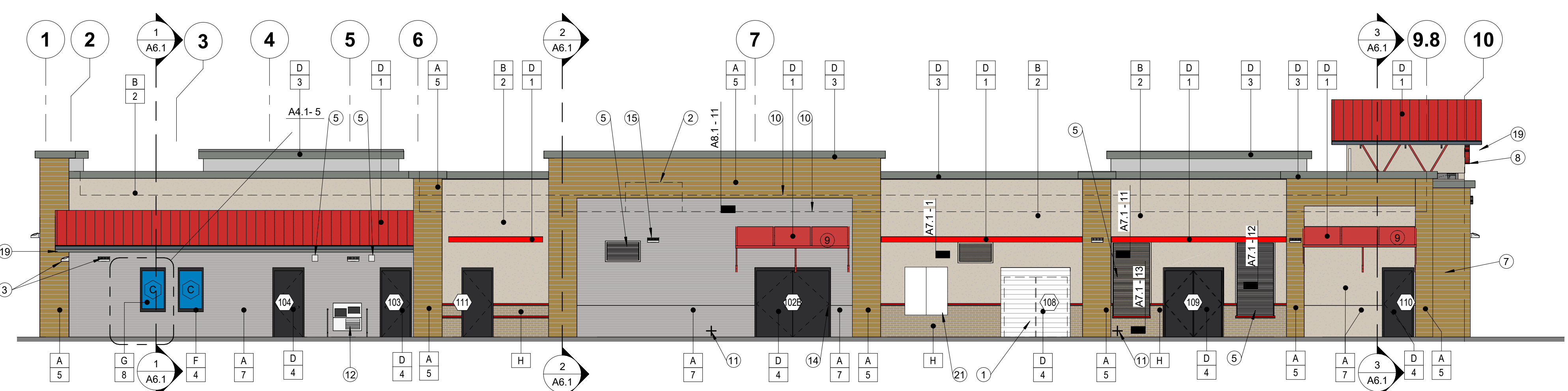
**2 NORTH ELEVATION**  
 1/8" = 1'-0"



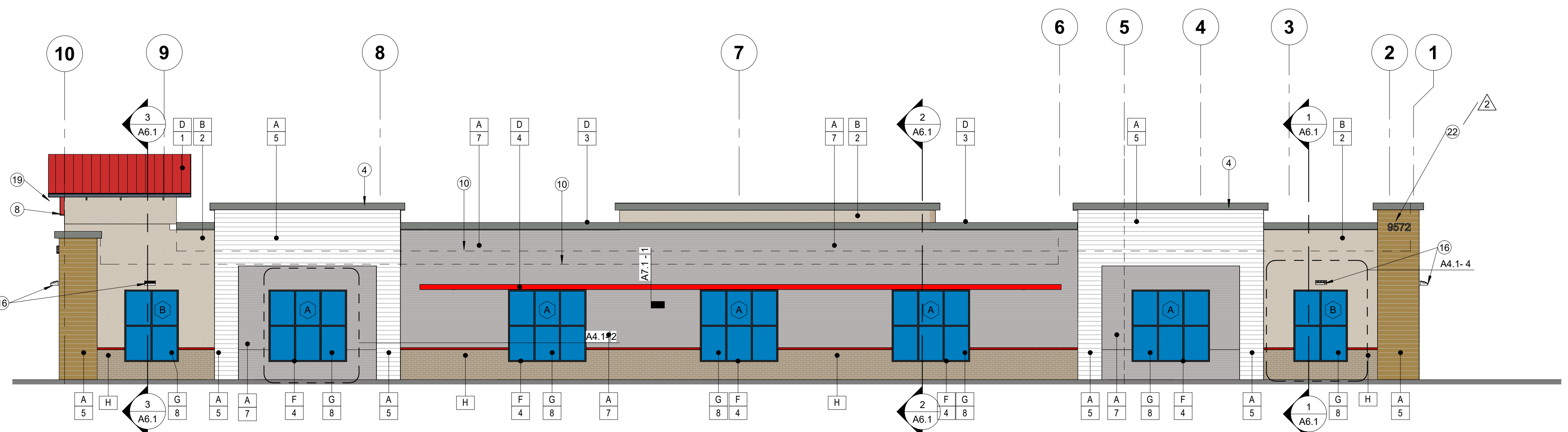
**1 SOUTH ELEVATION**  
 1/8" = 1'-0"



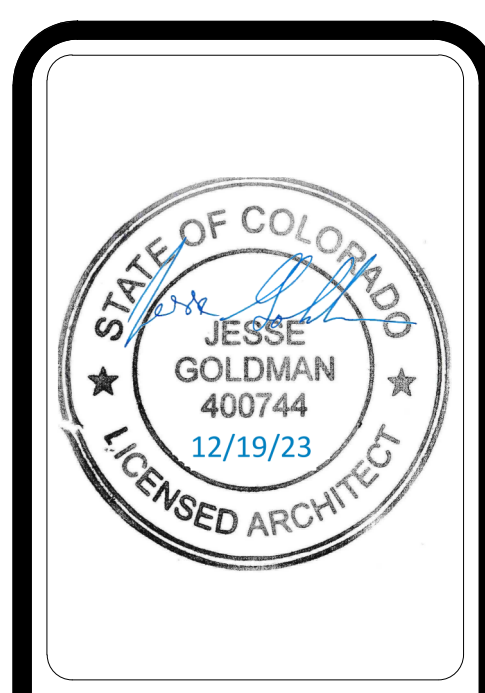
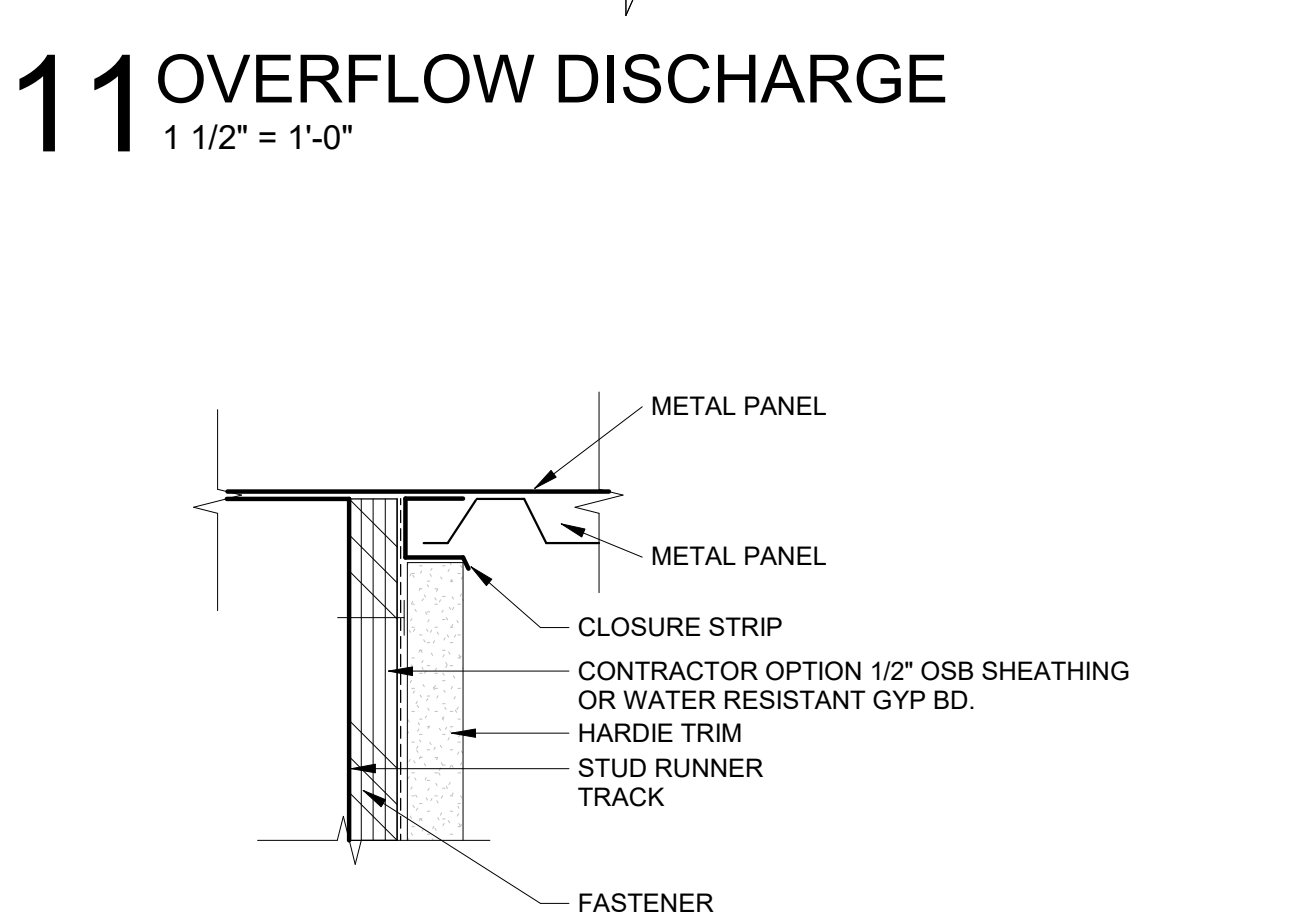
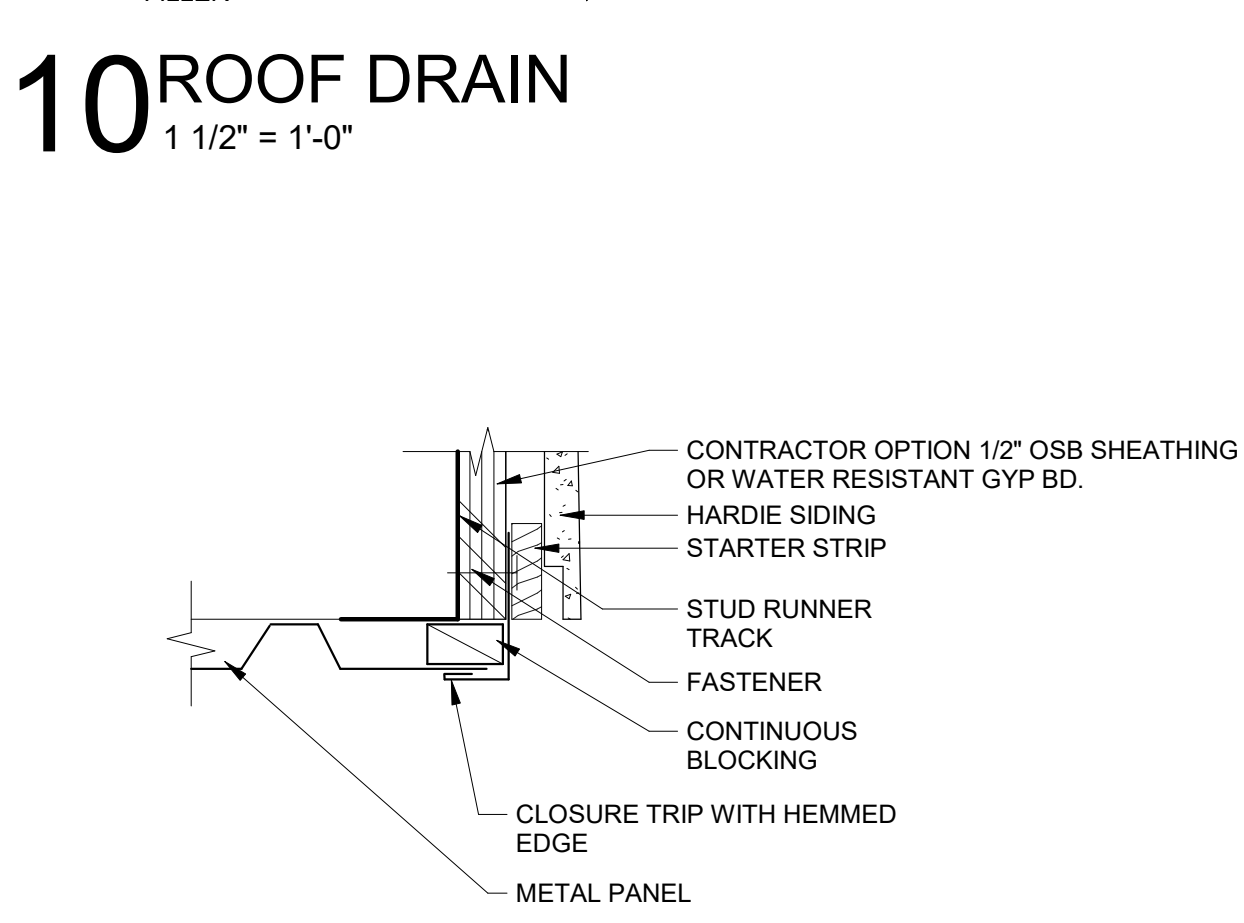
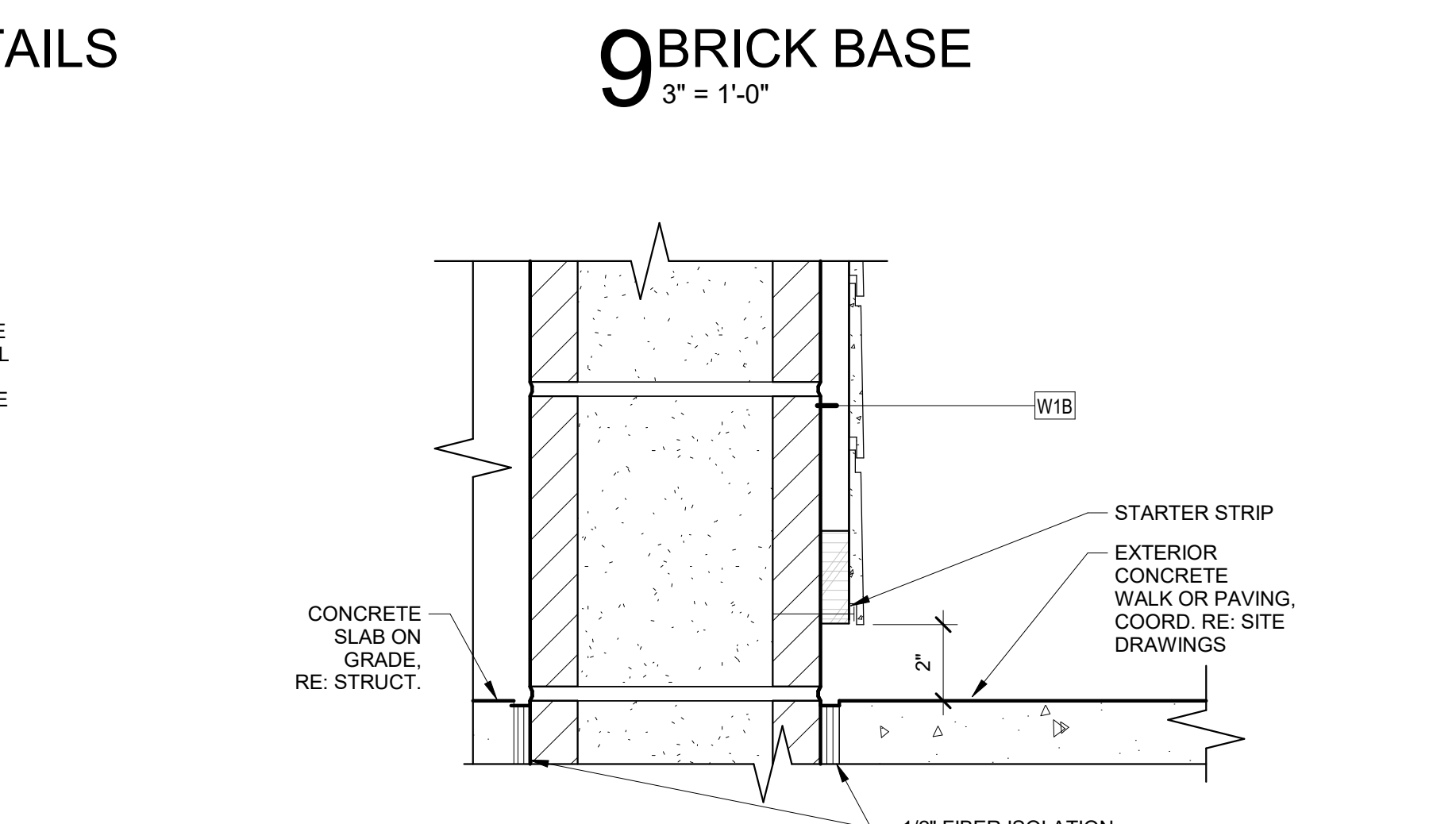
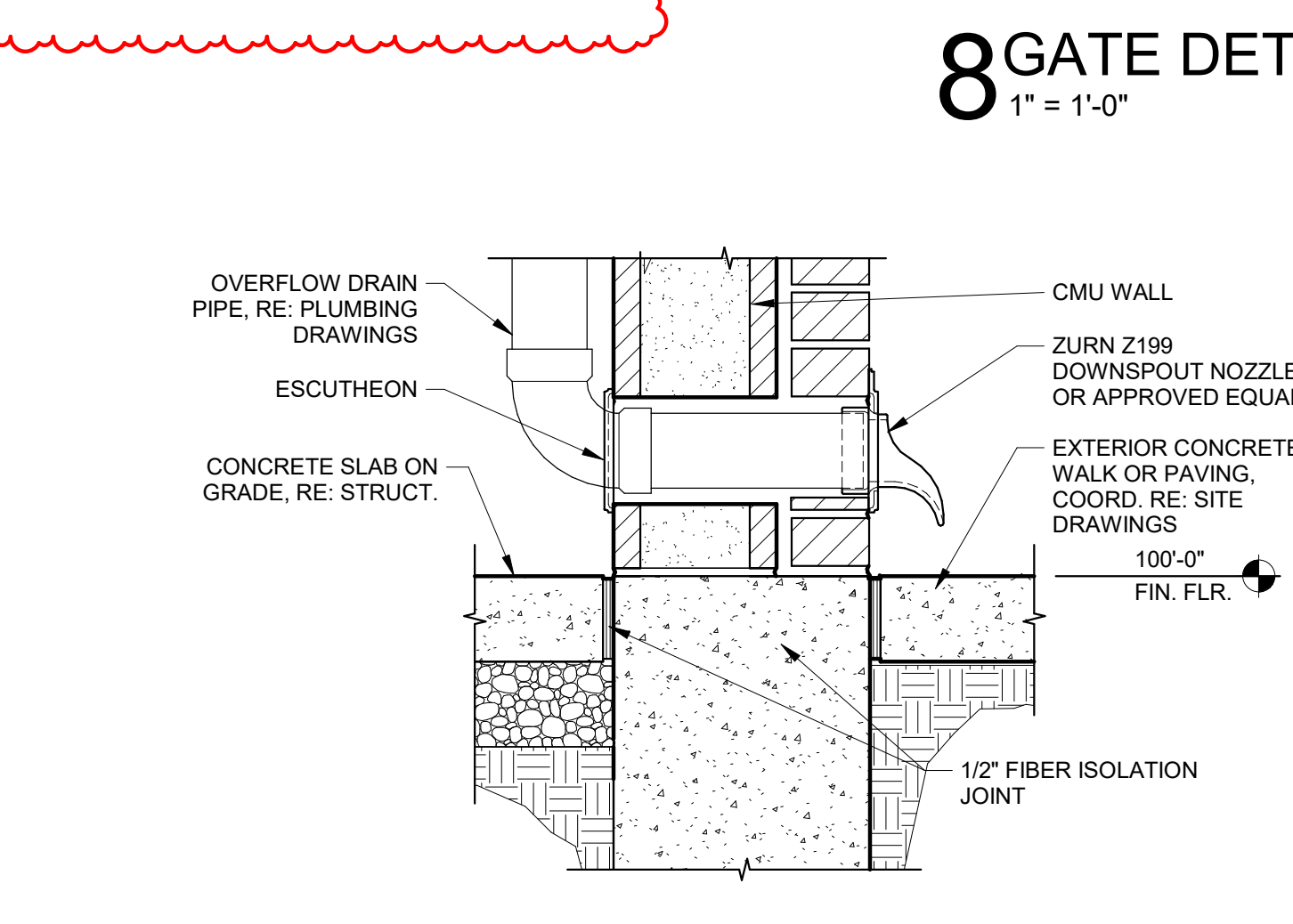
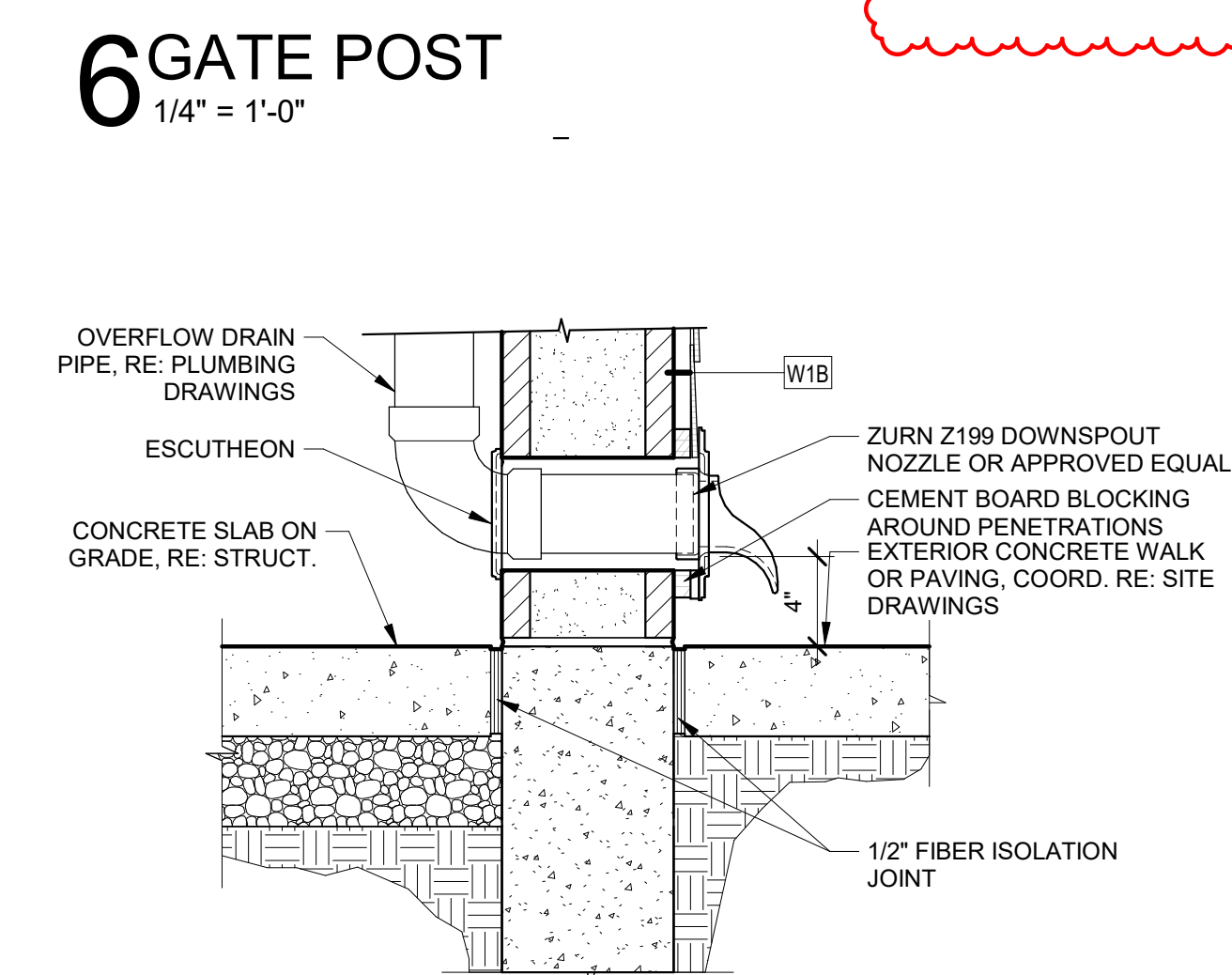
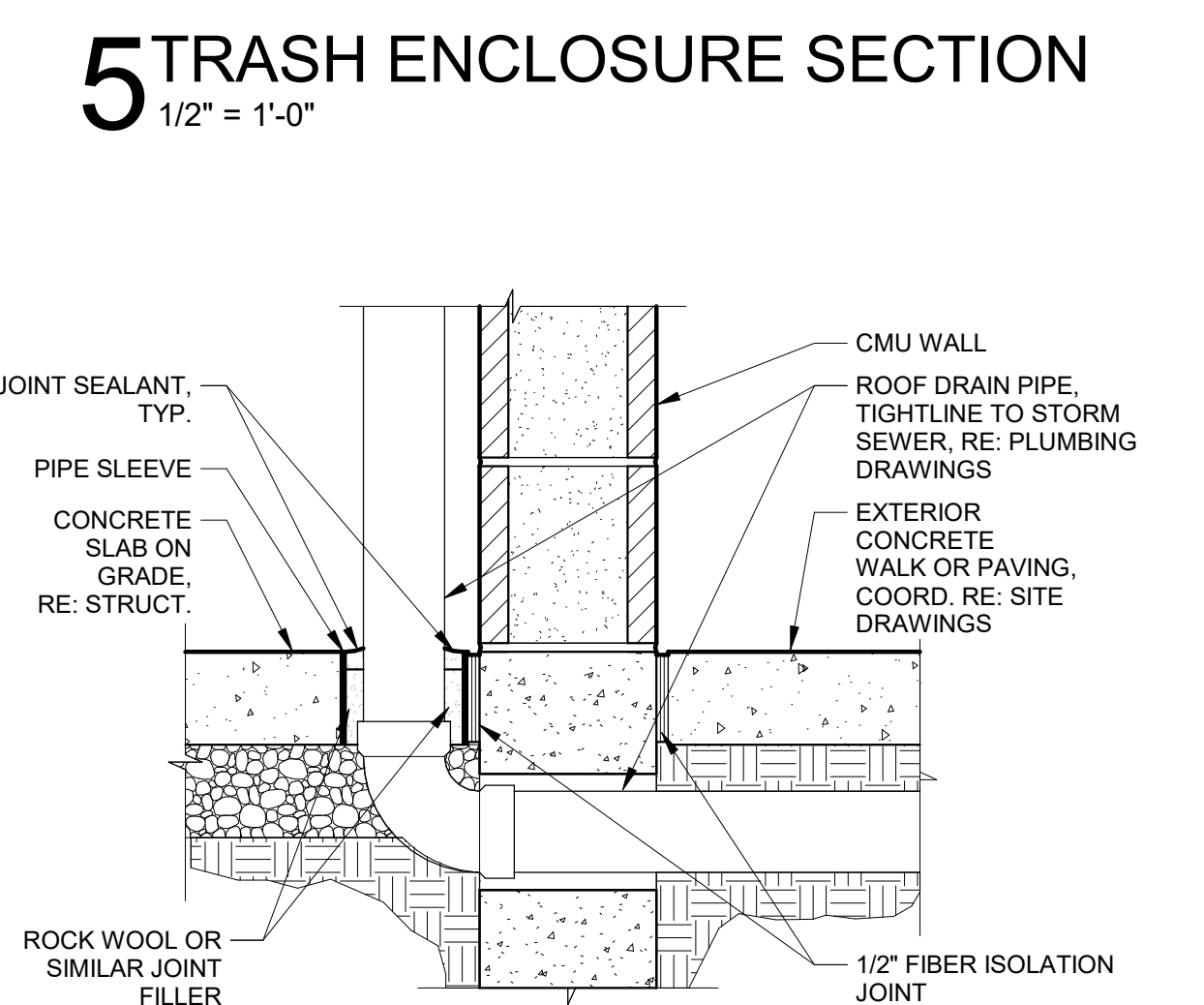
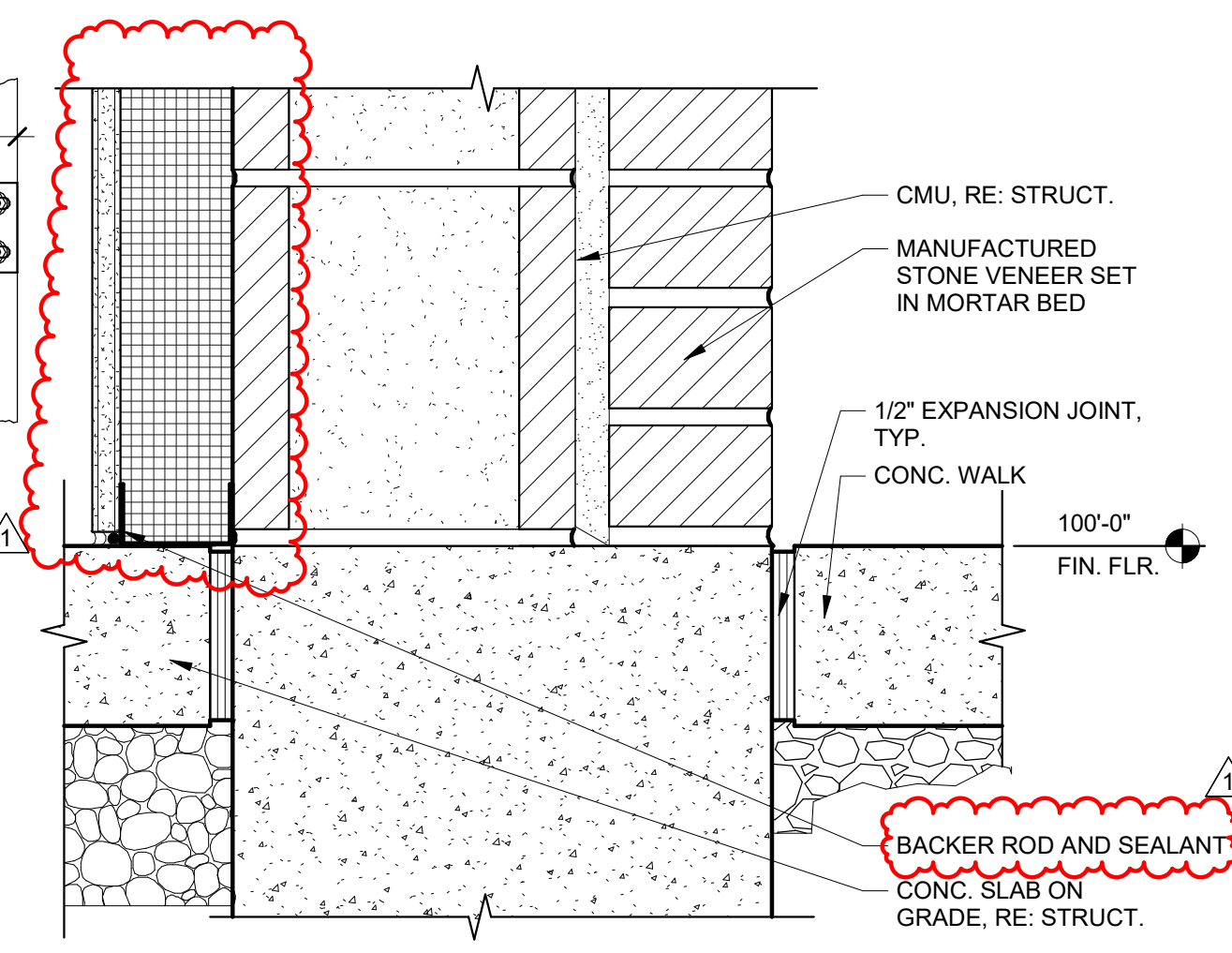
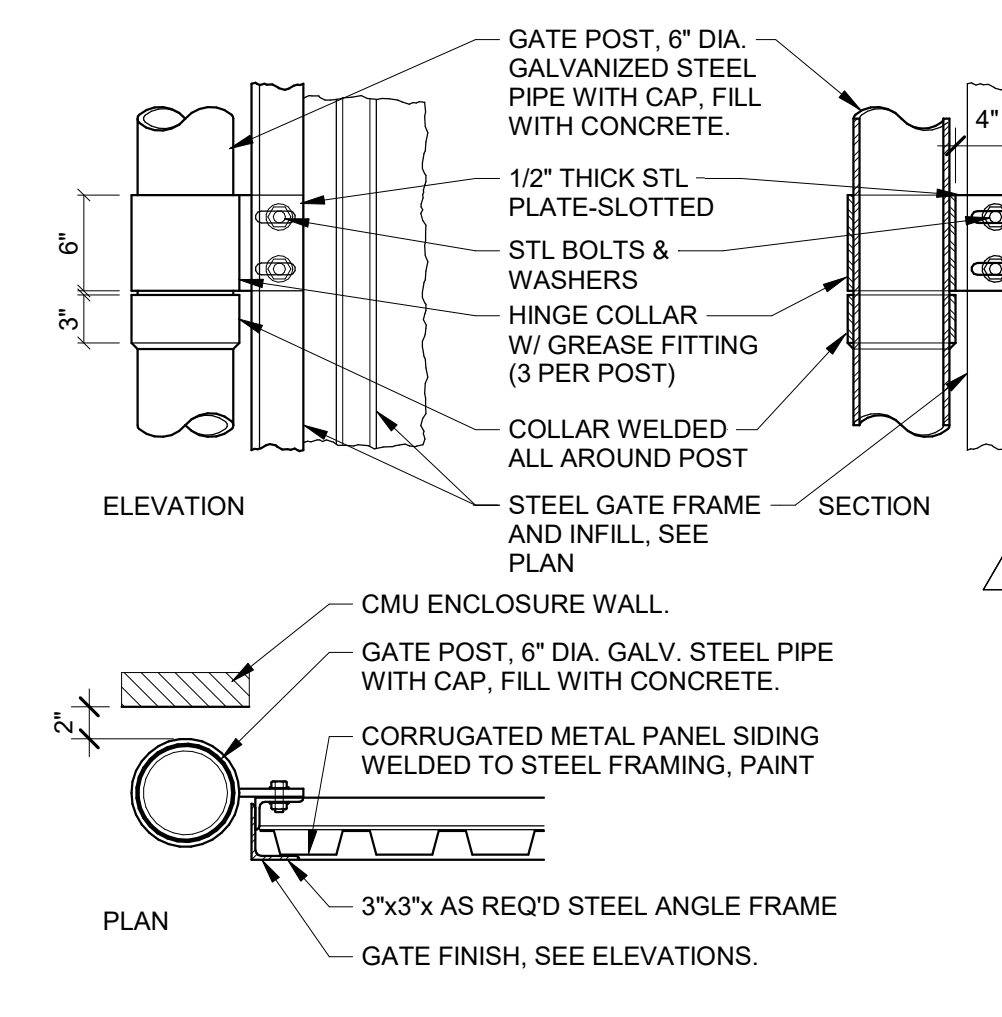
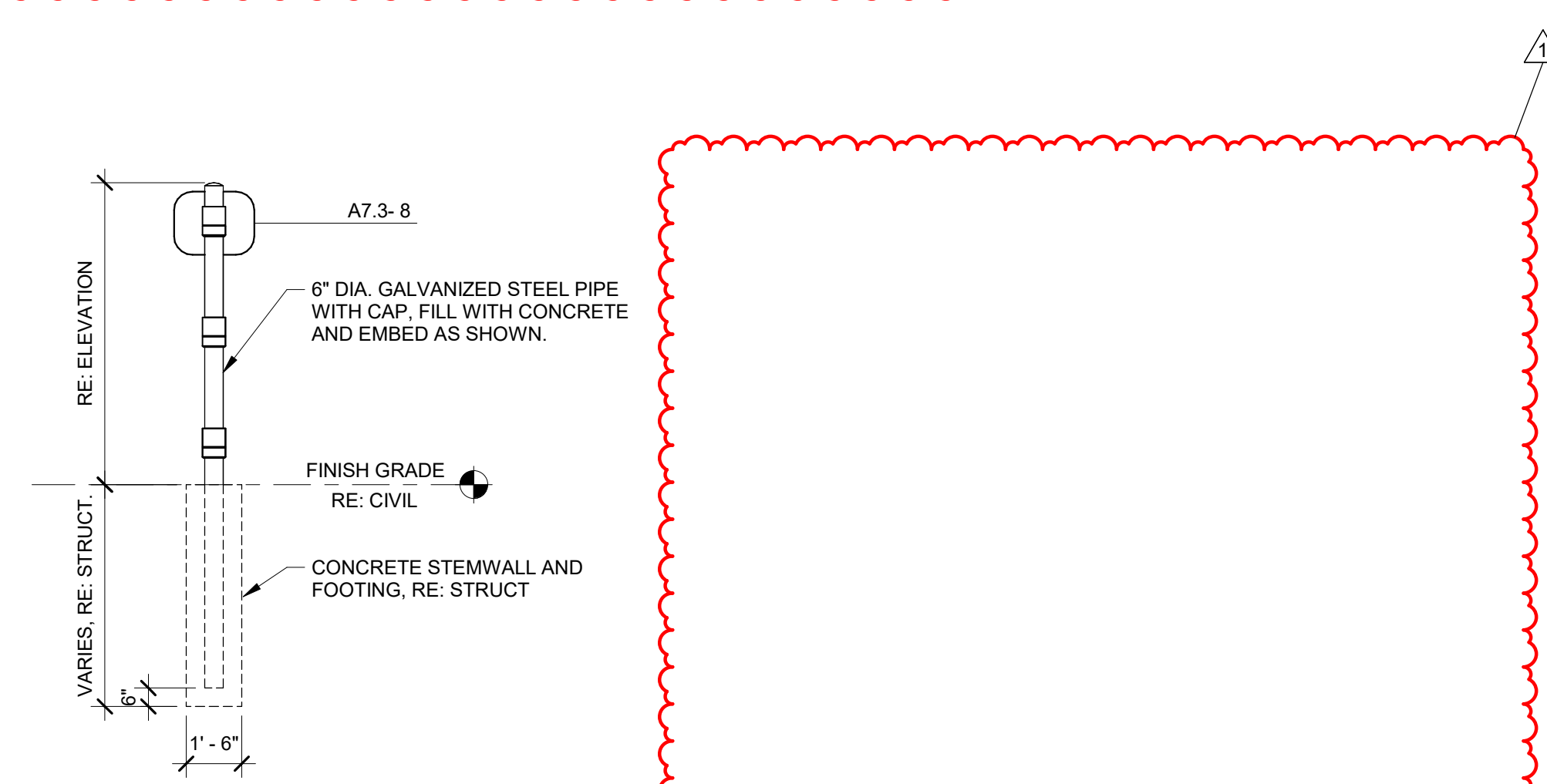
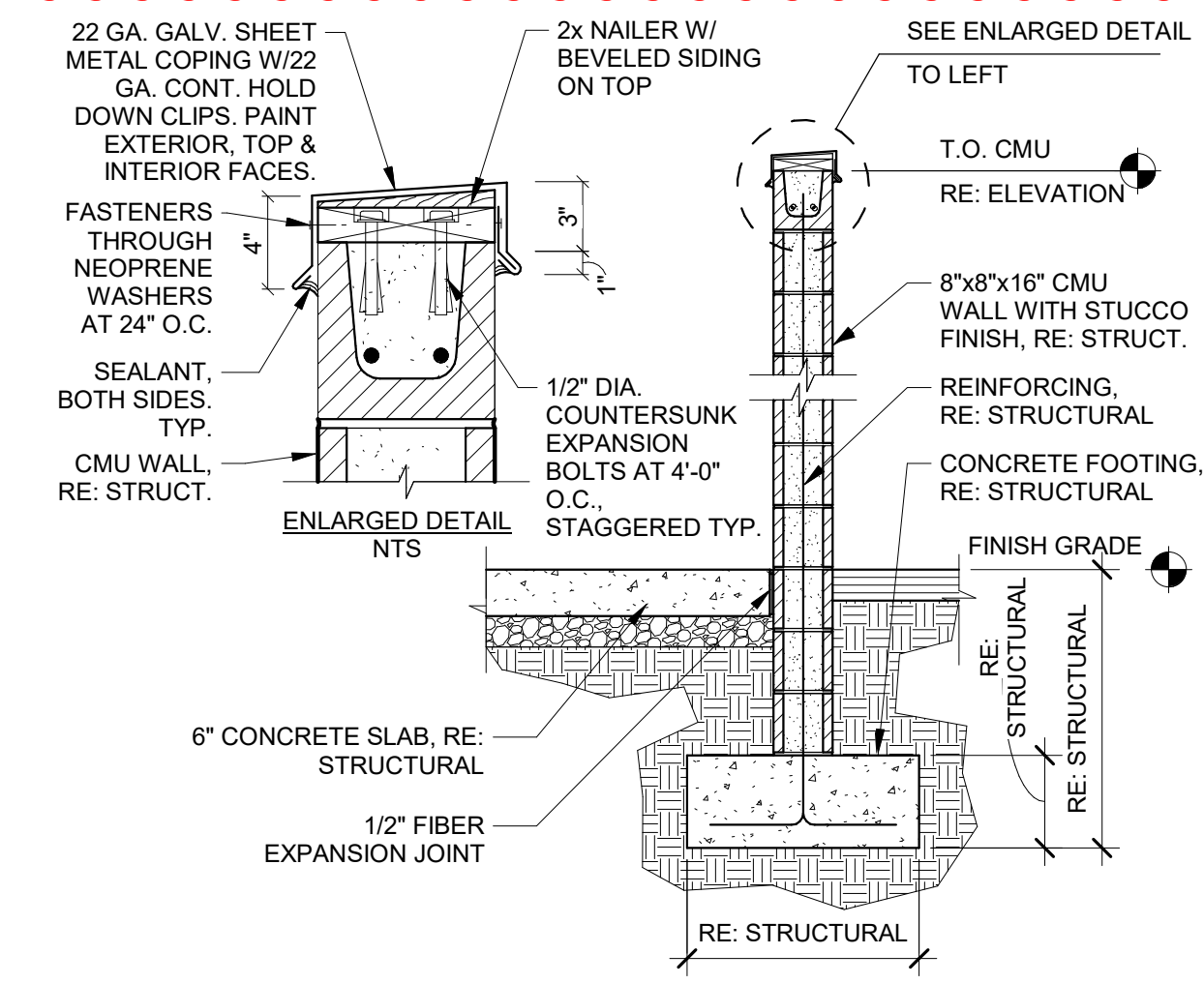
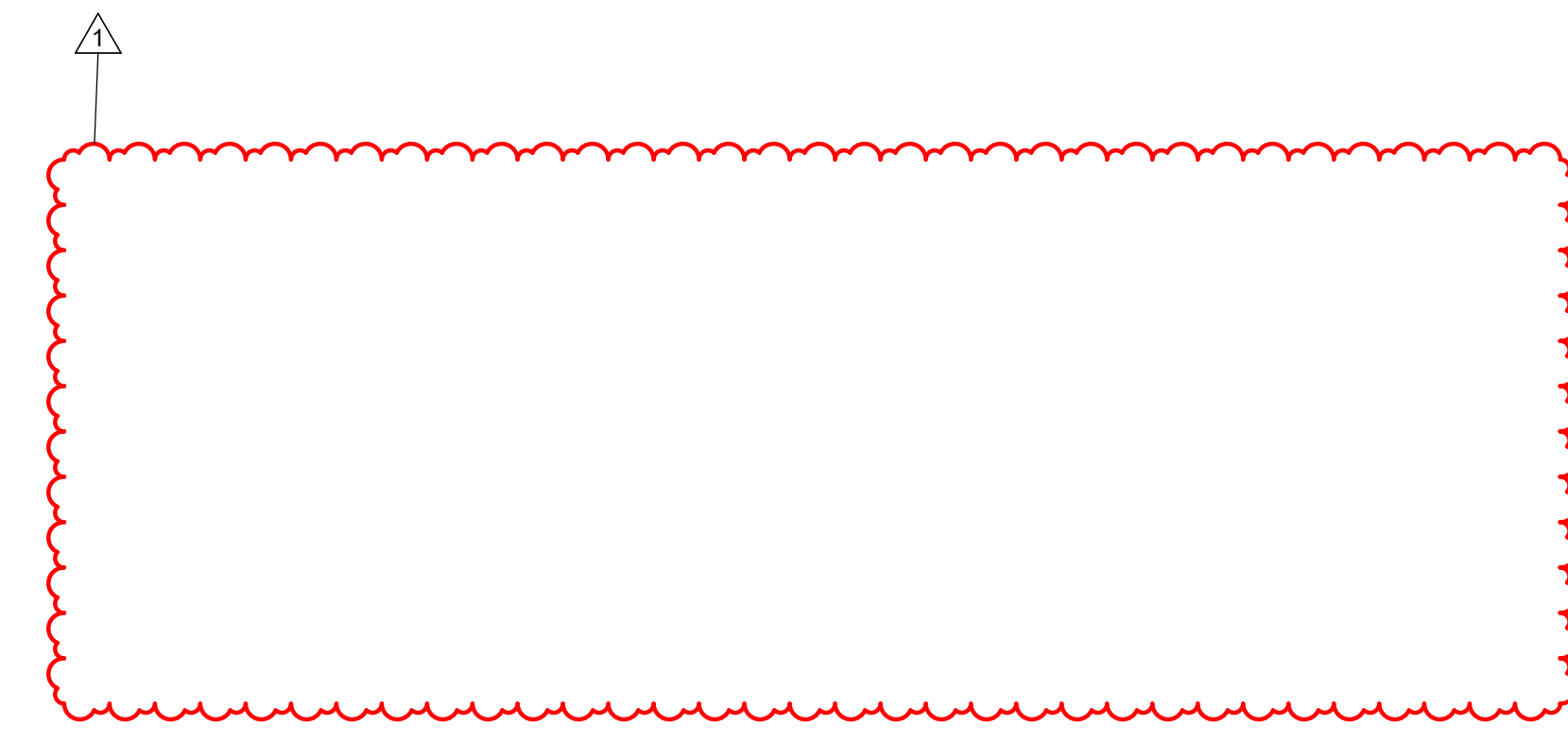
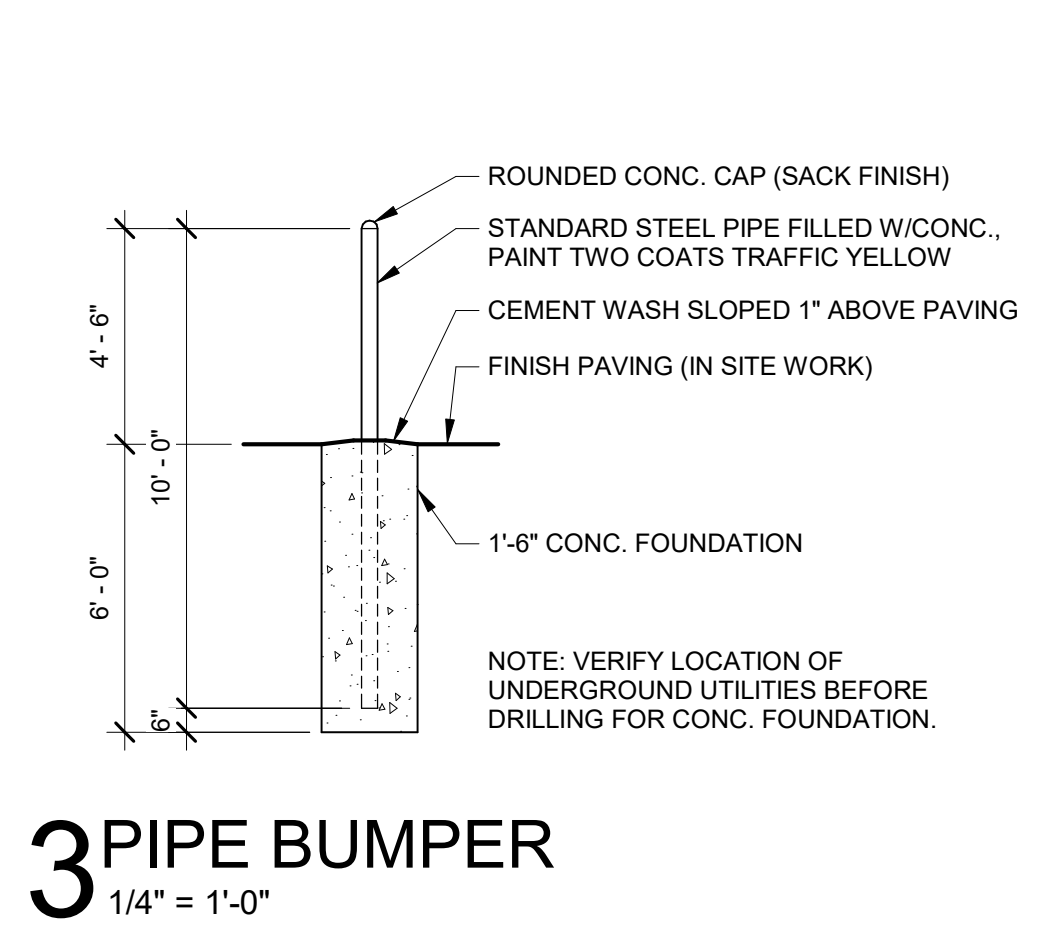
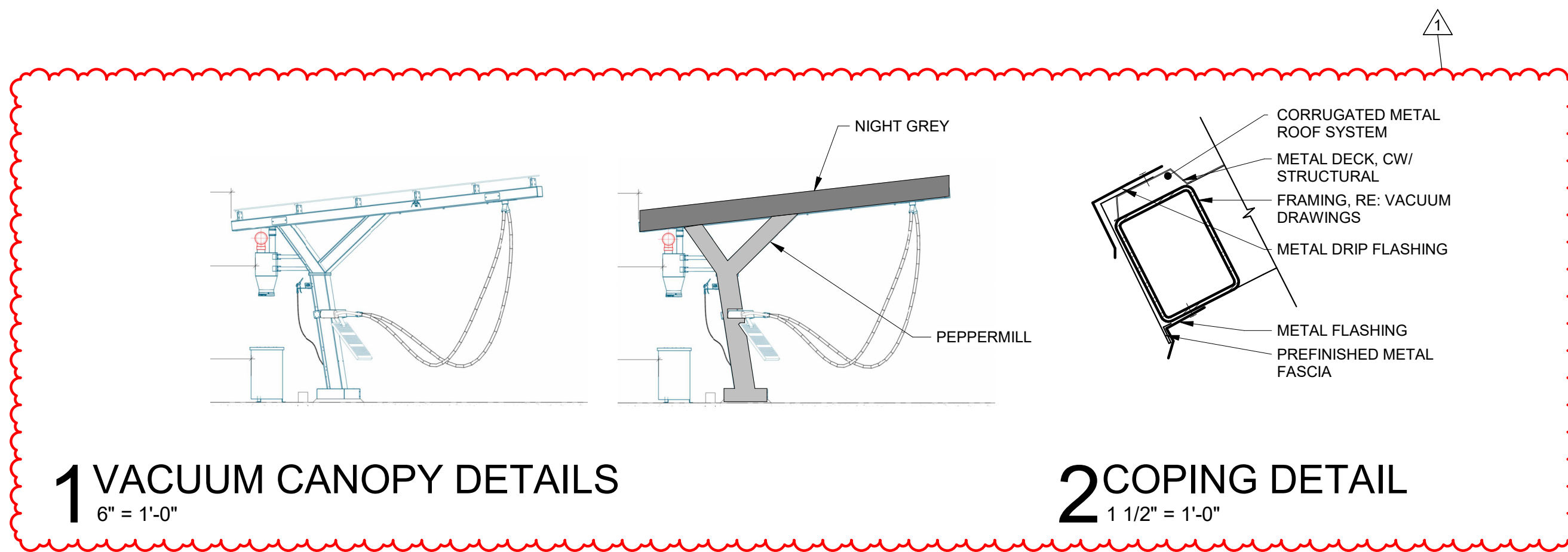
**VACUUM ELEVATION**



**3 WEST ELEVATION**  
 1/8" = 1'-0"



**4 EAST ELEVATION**  
 1/8" = 1'-0"



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 (303) 962-9164  
 www.cshoa.com

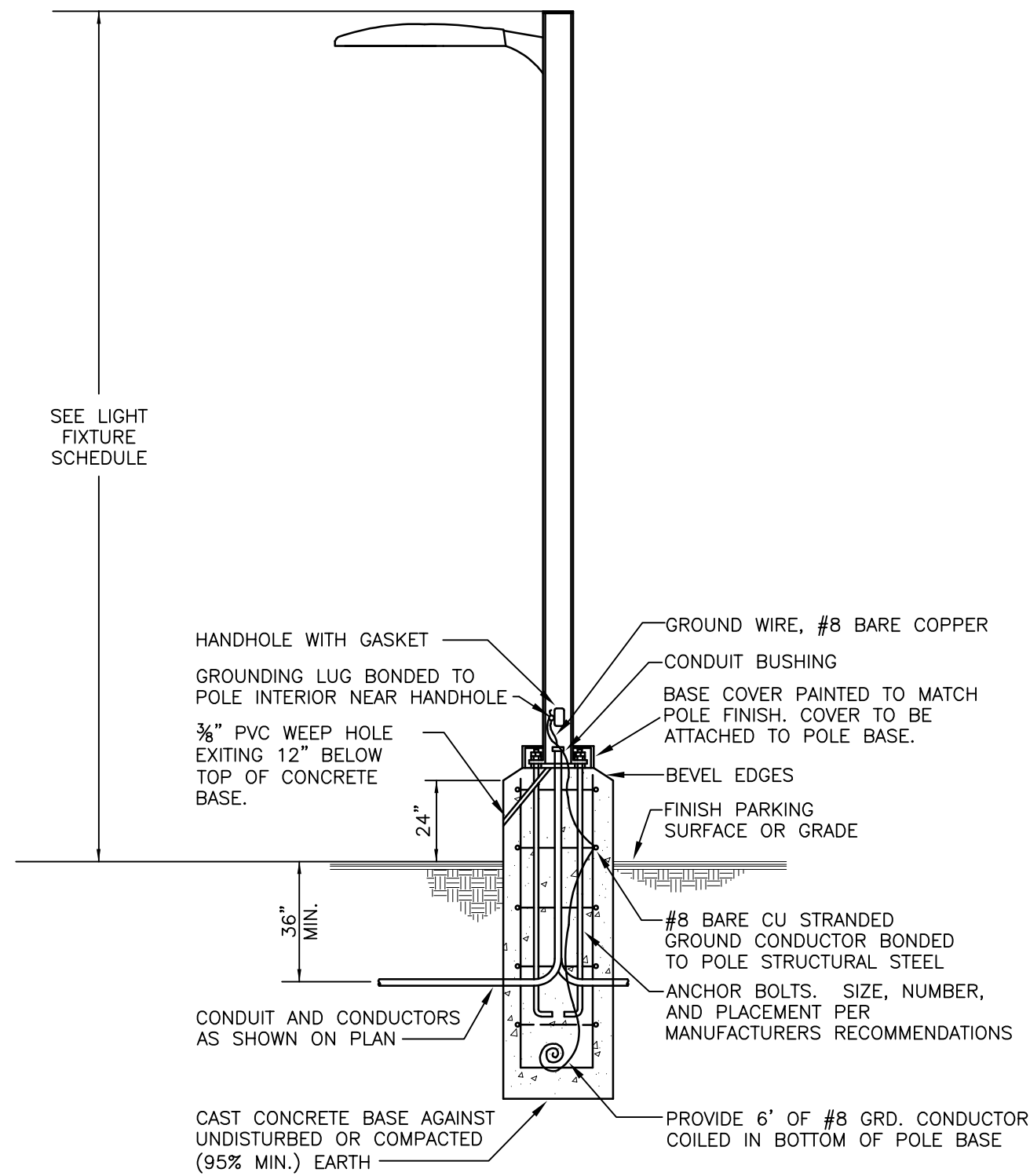
**CSHOA**  
 9572 TWENTY MILE ROAD

PROJECT	DATE
20037.000	12-19-2023
DRAWN	CHECKED
RJ	WRS

REVISED  
 1 AGENCY COMMENTS 12/19/2023

SHEET TITLE  
**DETAILS**

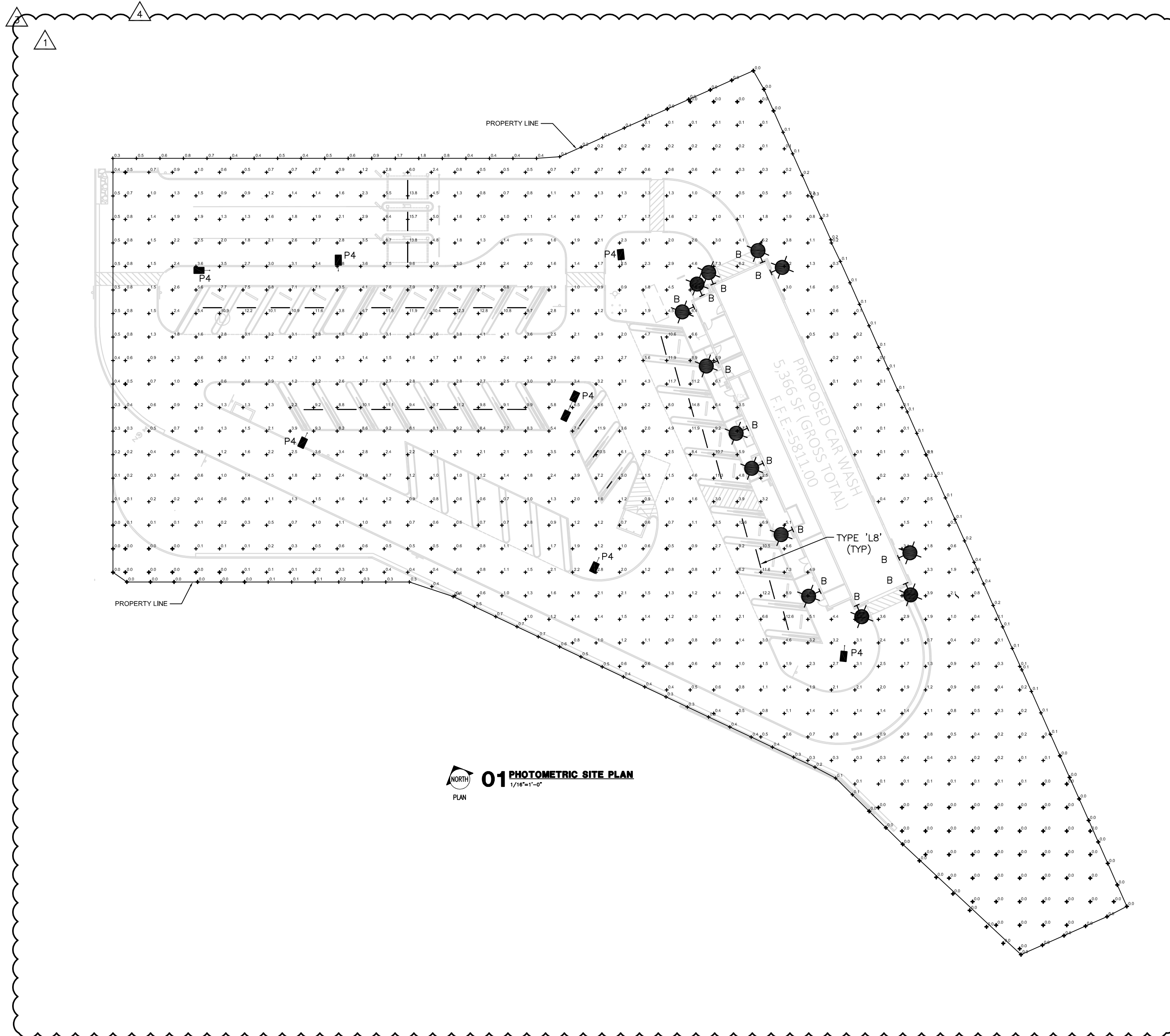
SHEET  
**A7.3**  
 ORIGINAL SHEET SIZE  
 24" x 36"



NOTE: DIAMETER & DEPTH OF CONCRETE BASE TO BE DETERMINED ON A REGIONAL BASIS. STRUCTURAL ENGINEER SHALL SIZE REBAR AND CONCRETE BASED ON REGIONAL WEATHER AND SOILS CONDITIONS.

NOTE: CONTRACTOR TO INSTALL NON-SHRINK MOTAR GROUT BETWEEN POLE BASE PLATE AND CONCRETE FOUNDATION AS REQUIRED AND SPECIFIED BY POLE MANUFACTURER.

## 02 POLE BASE DETAIL



## 01 PHOTOMETRIC SITE PLAN

LIGHTING CALCULATION SUMMARY					
AREA	AVERAGE	MAX	MIN	AVG/MIN	MAX/MIN
PARKING LOT	1.9	15.7	0.5	3.8:1	31.4:1
PROPERTY LINE	.2	1.8	0.0	NA	NA
SITE	2.3	15.7	0.0	NA	NA

LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS & BALLAST	MOUNTING	VOLTS	WATTS	REMARKS
P4	SITE POLE	DSXO LED P4 40K T3M MVOLT / SSS 20' W/2' BASE	LED 10256 LUMENS	POLE MOUNT	277	92	
B	EXTERIOR DECORATIVE WALL MOUNT	MCGRAW-EDISON IMPACT ELITE LED ISW-PA1-740-U-T3-BK	LED 2731 LUMENS	WALL MOUNT	277	20	
B1	NOT USED	-	-	-	-	-	
W3	NOT USED	-	-	-	-	-	
L8	WET LOCATION LED STRIP	G&G LED: WPX8-SO-40K	LED 7600 LUMENS	SURFACE	277	50	
H	NOT USED	-	-	-	-	-	

THIS SHEET IS PART OF THE CONSTRUCTION DOCUMENTS. OTHER SHEETS INCLUDING SPECIFICATIONS APPLY. THAT SHOWN HEREON IS SCHEMATIC IN NATURE AND NOT TO BE USED AS A SHOP DRAWING; THEREFORE, INCLUDE ALL MODIFICATIONS REQUIRED TO CONFORM TO SITE CONDITIONS AND THE EQUIPMENT AND MATERIAL USED. VERIFY LOCATIONS AND DIMENSIONS OF ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS AS SHOWN ON THEIR RESPECTIVE DOCUMENTS. THESE ELEMENTS ARE SHOWN FOR REFERENCE AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION AND THE ENGINEER ASSUMES NO LIABILITY FOR THE ACCURACY OF THESE ELEMENTS. NO DESIGN RESPONSIBILITY IS ASSUMED FOR ANY PORTION OF THE WORK THAT THE PROFESSIONAL ENGINEER HAS NOT SIGNED AND SEALED PER STATE/PROVINCE REQUIREMENTS.

# Dialectic

Dialectic Inc. 310 W 20th Street, Suite 200 Kansas City, MO 64108

T 816-997-9601  
F 816-997-9602  
DialecticEng.com

Copyright 2020



JESSE GOLDMAN, ARCHITECT  
2686 S. COLORADO BLVD.,  
DENVER, CO 80222  
(303) 962-9164

**PARKER, CO**

2686 S. COLORADO BLVD., STE 525  
DENVER, CO 80222  
(303) 962-9164  
www.cshqa.com

**QNC CAR WASH  
PARKER AND PINE**

PROJECT	DATE
20037	08-19-2020
DRAWN	CHECKED
AAD	EKZ

REVISED

- 1-CITY COMMENTS 05/13/21
- 2-OWNER UPDATE 05/02/22
- 3-CITY COMMENTS 10/20/22
- 4-OWNER UPDATE 05/06/25

SHEET TITLE  
**PHOTOMETRIC  
SITE PLAN**

SHEET

# ES1.0

ORIGINAL SHEET SIZE  
24" x 36"





## REVISION BULLETIN

---

**Recipient:**

**Name:** Lily Valentine  
**Email:** lily.valentine@cshqa.com  
**Phone:** (720) 239-7792

**Company:** Club Carwash  
24 Rd & G Rd  
Grand Junction, 81505

**Subject:** Delta 4 Revision Narrative

**Sender:**

**Name:** Bo Osborn  
**Email:** bo.osborn@dialecticeng.com  
**Phone:** (816) 997-9575

**Project Name:** Quick N Clean Photometrics-  
Parker, CO  
**Project #:** 01202058.05  
**Date:** May 08, 2025

---

**Comments:**

Sheet	Description	Summary
ES1.0	Photometric Site Plan	<p>Removed 3 lights from building.</p> <p>Revised all building lights to type B per site photo.</p> <p>Revised vacuum light L2 to L8 and changed location of light under canopy.</p> <p>Removed lights that turned into parking spots</p> <p>Re-calculated photometric per updated lights, revised lighting calculation summary.</p> <p>Removed light fixtures from light fixture schedule.</p> <p>Revised type B and L8 in light fixture schedule.</p>
ES1.1	Exterior Lighting Spec. Sheets	<p>Removed light fixture specification sheets that didn't apply to site conditions.</p> <p>Revised light fixture specifications sheets for light type B per site conditions.</p>



May 08, 2025

To whom it may concern:

We are changing the electrical EOR on this project from Adrian Franks license # 46852 due to departure from Dialectic to Josh Ibarra license # 56687 of good standing in the State of Colorado.

Respectfully Submitted,

Bo Osborn  
Project Manager



Civil Engineering, Landscape Architecture,  
Survey, Planning & Program Management

710 W. Pinedale Avenue  
Fresno, CA 93711  
Office: 559.447.3119  
Toll-free: 1.800.473.1887  
ceieng.com

June 01, 2025

Town of Parker, CO – Stormwater Utility  
20120 E. Main Street  
Parker, CO 80138

Re: Parker and Pine Filing No.1 Lot 4 – Car Wash – Drainage Letter

To Whom It May Concern,

Along with the construction documents for the referenced project, please accept this written statement regarding stormwater requirements for the proposed development. The proposed development consists of a proposed car wash, paving, parking, utilities, and landscaping within an overall development. Drainage calculations were performed using the Town of Parker Storm Drainage and Environmental Criteria Manual (Manual).

The intent of this letter is to demonstrate that the proposed development for Parker and Pine Filing No. 1 Lot 4 Car Wash conforms to the Town of Parker Storm Drainage and Environmental Criteria Manual and also falls within the design criteria of the Parker and Pine Retail Final Drainage Report (FDR) prepared by Kimley Horn, April 2020.

## **1.0 Introduction**

The proposed development lies at 9572 Twenty Mile Rd in Parker, CO. The site is Lot 4 of Parker and Pine Filing No. 1, County of Douglas, State of Colorado and is approximately 1.85 acres. The site is bounded on the North by a proposed Slim Chickens development for Lot 3 of Parker and Pine Filing No. 1, to the East by Parker Rd, and to the South and West by Baldwin Gulch.

## **2.0 Drainage Design Criteria**

### **A. Hydrologic Criteria**

The 5yr and 100yr design storm events were used in determining the overall runoff for the project site per Table 2.3 of the Town of Parker Storm Drainage and Environmental Criteria Manual. Table 5.1 of the Manual was utilized for determining rainfall date for the 5yr and 100yr design storm events. Runoff was calculated utilizing the Rational Method. Runoff coefficients for the development were calculated using Table 6-5 of Volume 1 of the Urban Storm Drainage Criteria Manual. Please refer to the hydrologic calculations in the attachments for additional information.

Drainage from the Car Wash facilities will be captured through a series of drains inside the car wash and be routed to reclamation tanks as part of the sanitary sewer system. These flows will be kept separate from storm water drainage as the interior of the car wash will be sloped towards the internal drainage system, and the exterior paved areas around the car wash will be sloped away from the facility and drain to the proposed storm sewer facilities.

Per the findings in the FDR, stormwater detention mitigation and water quality were evaluated and provided within the overall development. Per section 8.3.2.3.b Regional Facilities of the Storm Drainage and Environmental Criteria Manual the development will not discharge runoff to state waters and regional detention is provided for the overall development. Therefore, no permanent BMPs would be required for this development.

## **B. Hydraulic Criteria**

The proposed drainage facilities were designed in accordance with the Manual and were designed for both the 5yr and 100yr storm events in accordance with the Manual. Storm sewer pipes were sized and hydraulic grade lines calculated using UD-Sewer 2009 software. Private landscape inlets were sized utilizing manufacturer provided capacity charts, and all public inlets were sized utilizing UD-Inlet V5.01. Swale capacities were analyzed using Hydraflow Express Extension for AutoDesk Civil 3D software. Curb capacity for the landscape curb and gutter was analyzed using UD-Inlet V5.01. Full hydraulic calculations for the site can be found in the attachments.

## **3.0 Drainage Facility Design**

### **A. Existing Drainage Basins**

The existing drainage basin the site lies within is Sub-Basin 8.0 of the Parker and Pine Retail Final Drainage Report. The Sub-Basin area generally slopes Southwest towards Baldwin Gulch, and the Sub-Basin has a design imperviousness value of approximately 85% with a runoff rate of 6.13cfs and 12.90cfs for the 5yr and 100yr storm events respectively. The runoff for Sub-Basin 8.0 is intended to be routed to manhole B08.1 at design point 8.0 per the FDR. There is also an extremely small portion of the proposed development which will lie within Sub-Basin 17.0 of the FDR. Sub-Basin 17.0 has a design imperviousness value of approximately 100% with a runoff rate of 0.45cfs and 0.87cfs for the 5yr and 100yr storm events respectively. The runoff for Sub-Basin 17.0 is intended to be routed to Curb Inlet B08 at design point 17.0. Please refer to the FDR Drainage Area Map in the attachments for additional information.

### **B. Proposed Drainage Basins**

Upon development, the site will be split into (6) Sub-Basins and will comprise a total drainage area of approximately 2.05acres. All of the drainage from the Sub-Basins except Sub-Basins E and F will eventually flow to the existing regional storm sewer system at Curb Inlet B08 of the FDR.

Sub-Basin A will consist of on-site and off-site drainage which comprises a total drainage area of approximately 0.01acres. Runoff consists of paved, sidewalk, and landscape drainage and totals 0.03cfs and 0.06cfs for the 5yr and 100yr storm events respectively. The runoff will sheet flow towards the existing Curb Inlet B08 (per the FDR) at design point 1 and connect to the regional storm sewer system.

Sub-Basin B will consist of on-site and off-site drainage which comprises a total drainage area of approximately 0.34acres. Runoff consists of paved, sidewalk, and landscape drainage and totals 0.82cfs and 2.17cfs for the 5yr and 100yr storm events respectively. The runoff will be routed west to Grate Inlet GI-1 at design point 2.

Sub-Basin C will consist of on-site and off-site drainage which comprises a total drainage area of approximately 1.04acres. Runoff consists of paved, sidewalk, roof, and landscape drainage and totals 3.50cfs and 7.56cfs for the 5yr and 100yr storm events respectively. The majority of runoff will sheet flow west towards proposed curb inlet CI-1 at design point 3. Some of the runoff will be captured by a curb and gutter system along the western drive aisle and then be routed east to curb inlet CI-1 at design point 3.

Sub-Basin D will consist of on-site and off-site drainage which comprises a total drainage area of approximately 0.54acres. Runoff consists of landscape drainage and totals 0.06cfs and 2.16cfs for the 5yr and 100yr storm events respectively. The majority of the drainage will be collected in a landscape swale along the eastern side of the property behind the car wash and flow south then west via swale to a proposed curb and gutter system and berm provided by raised grades along an existing retaining wall along the western edge of the property. These features will route the drainage northwest towards proposed yard inlet YI-1 at design point 4.

Sub-Basin E will consist of drainage from on-site runoff which comprises a total drainage area of approximately 0.07acres. Runoff consists of landscape nuisance drainage and totals 0.004cfs and 0.29cfs for the 5yr and 100yr storm events respectively. This storm drainage which was unable to capture on-site will flow southwest towards Baldwin Gulch at design point 5.

Sub-Basin F will consist of drainage from on-site runoff which comprises a total drainage area of approximately 0.05acres. Runoff consists of landscape nuisance drainage and totals 0.002cfs and 0.19cfs for the 5yr and 100yr storm events respectively. Storm drainage from Sub-Basin E was unable to be captured and routed to the storm sewer system due to the elevation of 100yr HGL's for the proposed regional storm sewer system which is at elevation 5802.10. This storm drainage will flow towards Baldwin Gulch per previous drainage patterns at design point 6.

It should be noted that the existing Curb Inlet B08 is also receiving drainage from the area represented by design Sub-Basin 17.0 per the FDR. The Curb Inlet capacity has been analyzed based on proposed site grading and total flows being routed to it.

For additional information on the proposed drainage facility design, please refer to the Grading and Drainage Plans as well as the hydrologic calculations in the attachments.

#### **4.0 Conclusion**

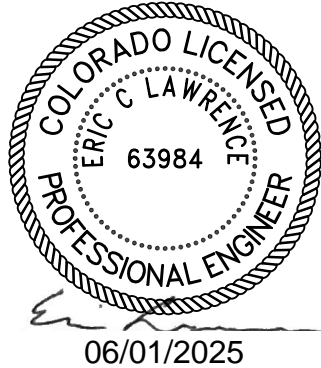
The Parker and Pine Filing No.1 Lot 4 Car Wash development is part of Sub-basin 8.0 per the FDR. This basin consists of 1.94 acres with a design impervious percentage of 85%. Allowable runoff rates for this basin are 6.13cfs and 12.90cfs for the 5yr and 100yr storm events respectively. The proposed development is approximately 62% impervious with proposed runoff rates of 4.42cfs and 12.44cfs for the 5yr and 100yr storm events respectively. The proposed development runoff is less than the allowable runoff for the subject basin. Also, per the FDR, regional water quality and detention is provided for the overall regional development. Since the runoff rates for the proposed site are below the design rates in the FDR, and regional water

quality and detention is provided, no additional on-site detention or permanent BMP's are required.

<b>Runoff Comparison Table</b>		
<b><i>Runoff (cfs)</i></b>	<b>5yr</b>	<b>100yr</b>
<b><i>Proposed Runoff</i></b>	4.42	12.44
<b><i>Allowable Runoff</i></b>	6.13	12.90
<b><i>Net Change</i></b>	-1.71	-0.46

Improvements outlined in this drainage letter and depicted on the construction documents shall not increase the risk of endangerment to life or have negative impacts on adjacent or downstream property or watersheds.

Sincerely,



Eric Lawrence, PE

Project Engineer – Engineer of Record

**Attachments**

Attachment 1: Drainage Map – Parker and Pine Retail Final Drainage Report

Attachment 2: Parker and Pine Filing No.1 Lot 4 Car Wash Grading Plan and Post Drainage Map

Attachment 3: Hydrologic Calculations

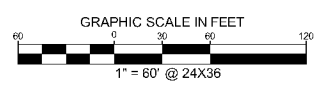
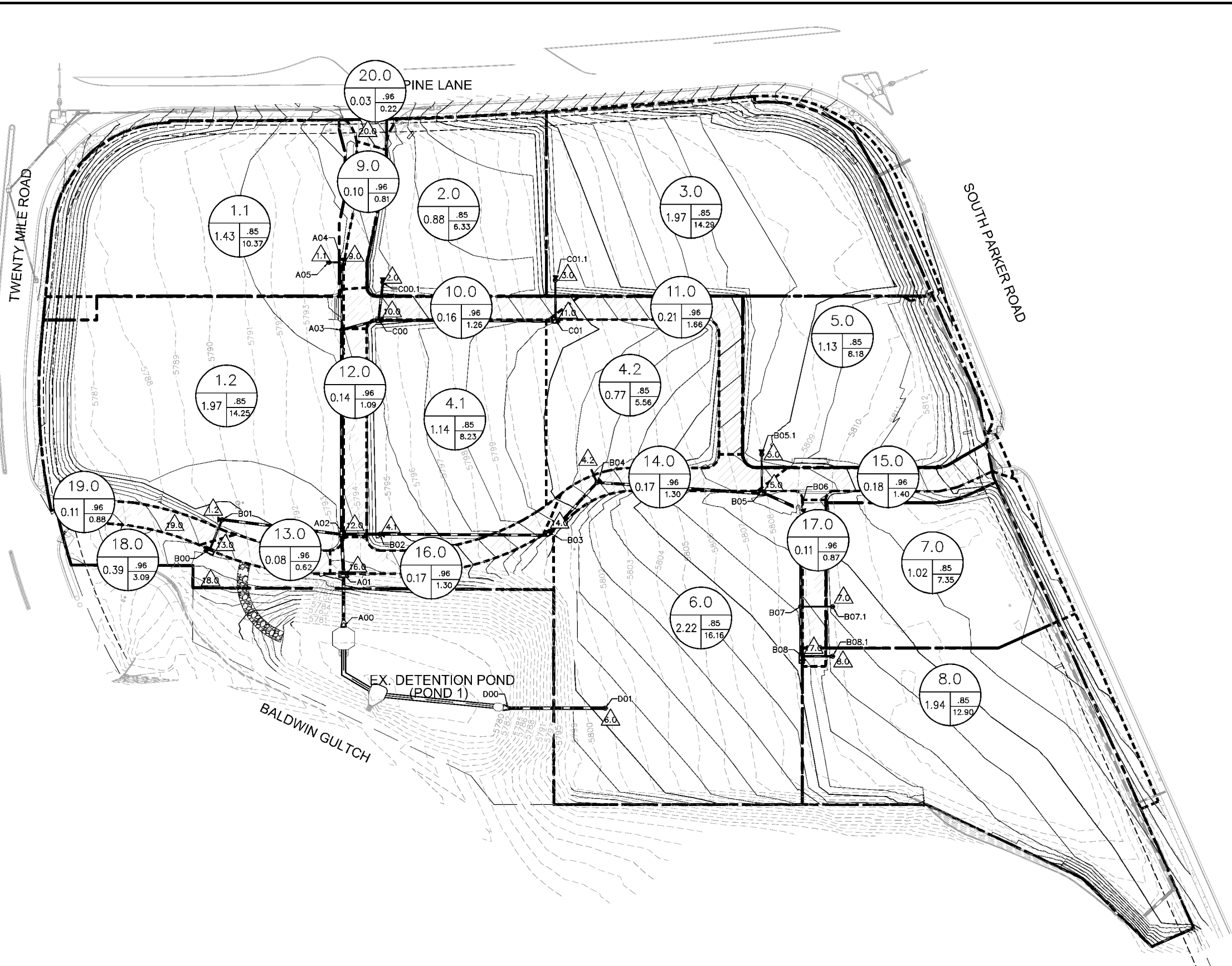
Attachment 4: Hydraulic Calculations

ATTACHMENT 1

OVERALL DEVELOPER DRAINAGE MAP

PARKER AND PINE RETAIL

K:\DEN\_Civil\096502001 - Mixed Use Parker Rd\CADD\PlanSheets\096502001DRM.dwg - Zentilis, Even 10/5/2019 10:57 AM  
 THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE AS DEFINED IN THE PROFESSIONAL ENGINEERING AND ARCHITECTURE ACT, AND SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



**LEGEND**

- |       |
|-------|
| A     |
| B   C |
| D     |

 A = BASIN DESIGNATION
- B = AREA (ACRES)
- C = BASIN IMPERVIOUSNESS
- D = 100YR DESIGN STORM RUNOFF (CFS)
- FLOW DIRECTION
- DRAINAGE BASIN BOUNDARY
- EXISTING PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED STORM INLET

NO.	REVISION	BY	DATE	APPR.

**Kimley»Horn**  
 2019 KIMLEY-HORN AND ASSOCIATES, INC.  
 1080 South U.S. Hwy. 1900  
 Denver, Colorado 80237 (303) 728-3700

DESIGNED BY: DLS  
 DRAWN BY: ECZ  
 CHECKED BY: DLS  
 DATE: 11/11/19

**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
**PRELIMINARY DRAINAGE AREA MAP**

**PRELIMINARY**  
 FOR REVIEW ONLY  
 NOT FOR  
 CONSTRUCTION  
**Kimley»Horn**  
 Kimley-Horn and Associates, Inc.

PROJECT NO.  
096502001  
 DRAWING NAME  
096502001DRM  
**DRAINAGE**



**Table 1. Runoff Summary for All Detained Sub-Basins**

<b>Runoff Summary</b>			
BASIN ID	AREA	Q <sub>5</sub>	Q <sub>100</sub>
	Ac	CFS	CFS
1.1	1.43	4.93	10.37
1.2	1.97	6.77	14.25
2.0	0.88	3.00	6.33
3.0	1.97	6.80	14.29
4.1	1.14	3.91	8.23
4.2	0.77	2.65	5.56
5.0	1.13	3.89	8.18
6.0	2.22	7.62	16.06
7.0	1.02	3.48	7.35
8.0	1.94	6.13	12.90
9.0	0.10	0.42	0.81
10.0	0.16	0.65	1.26
11.0	0.21	0.86	1.66
12.0	0.14	0.57	1.09
13.0	0.08	0.32	0.62
14.0	0.17	0.67	1.30
15.0	0.18	0.72	1.40
16.0	0.17	0.67	1.30
17.0	0.11	0.45	0.87
18.0	0.39	1.59	3.09

***UNDETAINED SUB-BASINS***

**Sub-Basins 19.0, and 20.0**

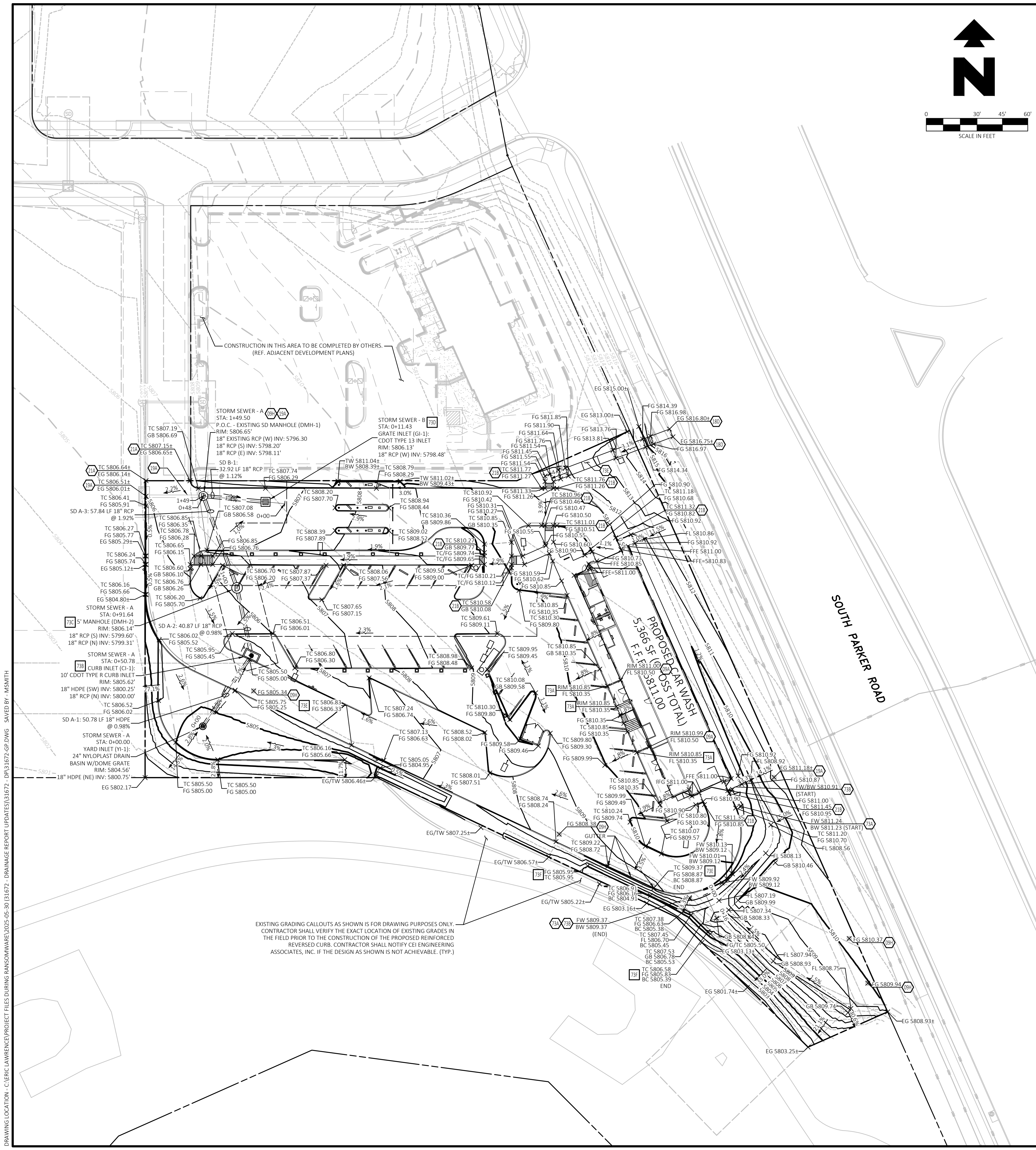
Sub-basins 19.0, and 20.0 are a total of 0.14 acres in size and are not detained. These sub-basins follow their historic flows onto the public right of way and into Baldwin Gulch.

**Table 2. Runoff Summary for Undetained Sub-Basins**

<b>Runoff Summary</b>			
BASIN ID	AREA	Q <sub>5</sub>	Q <sub>100</sub>
	Ac	CFS	CFS
19.0	0.11	0.45	0.88
20.0	0.03	0.11	0.22

ATTACHMENT 2

PARKER AND PINE FILING NO.1 CAR  
WASH GRADING PLAN AND POST  
DRAINAGE MAP



**EXISTING LEGEND:**

- P PROPERTY LINE/RIGHT OF WAY LINE
- C COMMUNICATIONS MANHOLE
- S SANITARY SEWER MANHOLE
- D STORM SEWER MANHOLE
- GAS UNDERGROUND GAS LINES
- COM UNDERGROUND COMMUNICATIONS LINES
- STM UNDERGROUND STORM SEWER LINES

**PROPOSED**

- GRADE BREAK
- XXX --- CONTOUR ELEVATIONS
- STORM DRAIN
- x XX.XX SPOT ELEVATIONS:
  - BC = BOTTOM OF REINFORCED REVERSE CURB
  - EG = EXISTING GRADE
  - FF = FINISH FLOOR ELEVATION
  - FG = FINISH GRADE
  - FL = FLOW LINE
  - FW = FRONT OF WALL
  - GB = GRADE BREAK
  - RIM = TOP OF STRUCTURE
  - TC = TOP OF CURB
  - TW = TOP OF WALL

- GENERAL GRADING NOTES**
- A. PRIOR TO INSTALLATION OF STORM OR SANITARY SEWER, THE CONTRACTOR SHALL EXCAVATE, VERIFY, AND CALCULATE ALL CROSSINGS AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT THE ENGINEER IS NOT NOTIFIED OF DESIGN CONFLICTS.
  - B. CONTRACTOR HAS THE OPTION TO BID THE FOLLOWING MATERIAL FOR THE STORM SEWER SYSTEM EXCEPT WHERE OTHERWISE NOTED: RCP, OR HDPE AS INDICATED ON THIS PLAN WHERE THE WORD PIPE IS USED. ALL PIPES SHALL HAVE A MAXIMUM ROUGHNESS COEFFICIENT ("N") OF 0.013 AND SHALL MEET OR EXCEED THE PIPE MANUFACTURERS REQUIREMENTS FOR MINIMUM AND MAXIMUM COVER. CONTRACTOR SHALL REFER TO THE PROJECT CONTRACT REQUIREMENTS FOR STORM SEWER SYSTEMS FOR ACCEPTABLE TYPE AND MATERIAL.
  - C. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND 4" OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS (SEE LANDSCAPE PLAN FOR SEED MIX AND PROPER APPLICATION RATE). ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
  - D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
  - E. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON OR WITHIN THE SPECIFICATIONS OF THE LOCAL AUTHORITIES:
    - ALL STORM DRAIN PIPE BEDDING SHALL BE INSTALLED PER DETAIL 28A (REF. CONSTRUCTION PLAN SET).
    - ALL STORM DRAIN PIPES ARE MEASURED FROM CENTER OF STRUCTURES AND ENDS OF FLARED END SECTIONS.

- GRADING DETAILS (REF. CONSTRUCTION PLAN SET FOR DETAILS)**
- 01P RAISED CURB AND GUTTER
  - 73A 6" CURB CHASE DRAIN (NON-RESIDENTIAL) LAYOUT - PER PARKER COLORADO STANDARD DETAIL 29
  - 73B 10" CDOT TYPE R CURB INLET W/ TOWN OF PARKER MANHOLE COVER
  - 73C 5" CDOT MANHOLE W/TOWN OF PARKER MANHOLE COVER
  - 73D CDOT TYPE 13 INLET
  - 73E REINFORCED REVERSE CURB WITHOUT FOOTING
  - 73F REINFORCED REVERSE CURB WITH FOOTING

- GRADING NOTES**
- 09A DOWN SPOUTS - (TYP. - PER ARCH. PLANS).
  - 09H REMOVE TOP OF EXISTING DRAINAGE STRUCTURE AND ADJUST RIM TO ELEVATION TO MATCH FINISH GRADE. IF EXISTING STRUCTURE TOP IS A GRATE, REPLACE WITH TOWN OF PARKER MANHOLE COVER.
  - 18D MATCH EXISTING PAVEMENT ELEVATIONS.
  - 19A EXISTING TO REMAIN.
  - 21A TAPER CURB TO MATCH EXISTING CURB.
  - 21B TAPER CURB FROM 6 INCHES TO 0 INCHES OVER 2 FEET.
  - 73A RETAINING WALL (PER ARCH. PLANS).
  - 73B FOUR (4) FOOT SCREEN WALL (PER ARCH. PLANS).
  - 73C LANDSCAPE SWALE TERMINATION (REF SECTION VIEW THIS SHEET)
  - 73D TRANSITION FROM 6" CURB AND GUTTER TO 12" RAISED CURB AND GUTTER
  - 73E STEPPED PATH WITH UPPER STAIR SEGMENT; ELEVATIONS SET BY OTHERS

**ADA STANDARD NOTE**

THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY THE CITY OF PARKER DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY OTHER FEDERAL OR STATE ACCESSIBILITY LAWS OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS. SOLE RESPONSIBILITY FOR COMPLIANCE WITH FEDERAL AND STATE ACCESSIBILITY LAWS LIES WITH THE PROPERTY OWNER.

**BENCHMARK**

DOUGLAS CONTROL MONUMENT #1.095035, A 3" ALUMINUM CAP.  
ELEVATION = 5906.34 FEET (NAVD1988), AS PUBLISHED BY DOUGLAS COUNTY

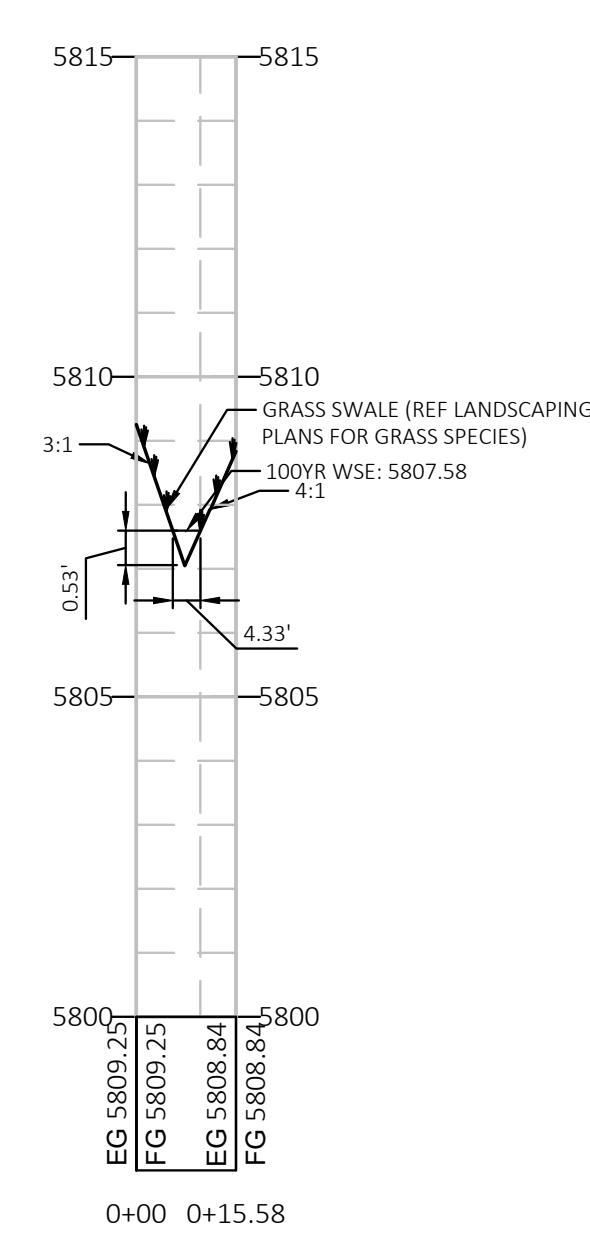
**BASIS OF BEARINGS**

THE BEARINGS ARE BASED ON THE WEST ROW LINE OF SOUTH PARKER ROAD ASSUMED TO BEAR S23°56'20"E BETWEEN MONUMENTS FOUND AND DESCRIBED HEREIN.

**FLOOD ZONE INFORMATION**

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", AREAS OF MINIMAL FLOOD HAZARD, AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM.  
MAP NUMBER: 0805SC0067G  
EFFECTIVE DATE: MARCH 16, 2016

LANDSCAPE SWALE CROSS SECTION PROFILE  
VERTICAL SCALE: 1"=3'  
HORIZONTAL SCALE: 1"=30'



EXISTING GRADING CALLOUTS AS SHOWN IS FOR DRAWING PURPOSES ONLY. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EXISTING GRADES IN THE FIELD PRIOR TO THE CONSTRUCTION OF THE PROPOSED REINFORCED REVERSE CURB. CONTRACTOR SHALL NOTIFY CEI ENGINEERING ASSOCIATES, INC. IF THE DESIGN AS SHOWN IS NOT ACHIEVABLE. (TYP.)

DRAWING LOCATION: C:\CLIENT\LAURENCE\PROJECT FILES\DRAINAGE\BANSOAN\2025-05-30\01672 - DRAINAGE REPORT UPDATE\31672 - DR31672.GPJ DWG. SAVED BY: MASHMITH



CEI ENGINEERING ASSOCIATES, INC.  
710 W. PINEDALE AVE.  
FRESNO, CA 93711  
PHONE: (559) 447-3119  
FAX: (559) 447-3129



CLIENT  
3K1 CONSULTING SERVICES, LLC.  
11811 N. TATUM BOULEVARD,  
PHOENIX, ARIZONA 85028  
PHONE: (602) 850-8103



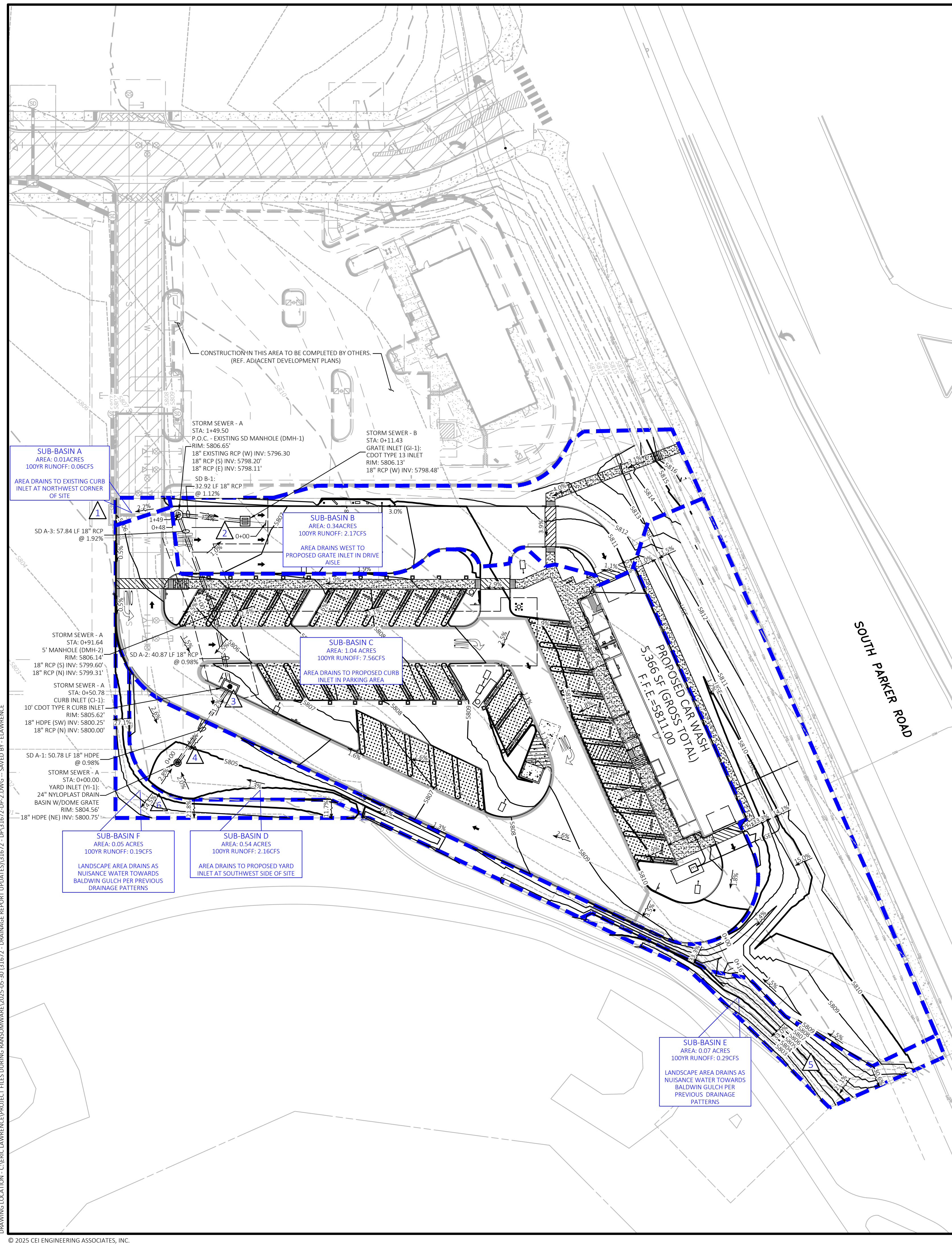
PLANS PREPARED FOR  
QUICK N CLEAN  
7291 E. ADOBE DRIVE, SUITE 115  
SCOTTSDALE, AZ 85255  
PHONE: (480) 707-3531

REVISION		
NO.	DESCRIPTION	DATE

PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO

PROFESSIONAL OF RECORD	ECL
PROJECT MANAGER	MS
DESIGNER	RM
CEI PROJECT NUMBER	31672
DATE	5/30/2025
REVISION	REV-7

GRADING PLAN  
SHEET TITLE  
SHEET NUMBER



**POST DEVELOPMENT STORMWATER RUNOFF**  
Rational Method  
Project: Quick N Clean  
Address: Parker Rd. & Pine Lane Ave.  
Parker, CO  
Based Upon: City of Parker and UDFCD Drainage Manual

**Time of Concentration**

Min	Notes
Tc	Min. Tc for urbanized conditions

**Sub-Basin A (Onsite and Offsite)**

Total Area	0.01 acres	350 SF	Notes
Paved Area	0.01 acres	350 SF	Area drains to existing curb inlet at northwest corner of site
Drive and Walks	0.00 acres	0 SF	
Lawns, Sandy Soil	0.00 acres	0 SF	
% Impervious (Composite)	100%		
Hydrologic Soil Group	B		
Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr	
	0.86	0.89	
One Hour Point Rainfall (in) (Table S.1 Town of Parker Manual)	5yr	100yr	
	1.39	2.6	
Rainfall Intensity (in/hr) (Equation RA-S UDCEK)	5yr	100yr	
	4.71	8.82	
Runoff (cfs)	5yr	100yr	
	0.09	0.06	

**Sub-Basin B (Onsite and Offsite)**

Total Area	0.34 acres	14,760 SF	Notes
Paved Area	0.00 acres	8,845 SF	Area drains to proposed grate inlet in drive aisle
Drive and Walks	0.01 acres	522 SF	
Lawns, Sandy Soil	0.12 acres	5,403 SF	
% Impervious (Composite)	64%		
Hydrologic Soil Group	B		
Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr	
	0.51	0.72	
One Hour Point Rainfall (in) (Table S.1 Town of Parker Manual)	5yr	100yr	
	1.39	2.6	
Rainfall Intensity (in/hr) (Equation RA-S UDCEK)	5yr	100yr	
	4.71	8.82	
Runoff (cfs)	5yr	100yr	
	0.82	2.17	

**Sub-Basin C (Onsite and Offsite)**

Total Area	3.04 acres	45,192 SF	Notes
Paved Area	0.68 acres	29,807 SF	Area drains towards proposed curb inlet CP-1 in parking area
Drive and Walks	0.06 acres	2,590 SF	
Roofs	0.12 acres	5,336 SF	
Lawns, Sandy Soil	0.12 acres	7,459 SF	
% Impervious (Composite)	82%		
Hydrologic Soil Group	B		
Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr	
	0.71	0.82	
One Hour Point Rainfall (in) (Table S.1 Town of Parker Manual)	5yr	100yr	
	1.39	2.6	
Rainfall Intensity (in/hr) (Equation RA-S UDCEK)	5yr	100yr	
	4.71	8.82	
Runoff (cfs)	5yr	100yr	
	3.50	7.56	

**Sub-Basin D (Onsite and Offsite)**

Total Area	0.54 acres	23,679 SF	Notes
Drives and Walks	0.02 acres	674 SF	Area drains towards proposed yard inlet Y1-1 at southwest corner of site
Lawns, Sandy Soil	0.53 acres	23,005 SF	
% Impervious (Composite)	5%		
Hydrologic Soil Group	B		
Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr	
	0.02	0.45	
One Hour Point Rainfall (in) (Table S.1 Town of Parker Manual)	5yr	100yr	
	1.39	2.6	
Rainfall Intensity (in/hr) (Equation RA-S UDCEK)	5yr	100yr	
	4.71	8.82	
Runoff (cfs)	5yr	100yr	
	0.06	2.16	

**Sub-Basin E (Onsite and Offsite)**

Total Area	0.07 acres	3,225 SF	Notes
Lawns, Sandy Soil	0.07 acres	3,225 SF	Landscape area drains as nuisance flow towards Baldwin Gulch per previous drainage patterns.
% Impervious (Composite)	2%		
Hydrologic Soil Group	B		
Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr	
	0.01	0.44	
One Hour Point Rainfall (in) (Table S.1 Town of Parker Manual)	5yr	100yr	
	1.39	2.6	
Rainfall Intensity (in/hr) (Equation RA-S UDCEK)	5yr	100yr	
	4.71	8.82	
Runoff (cfs)	5yr	100yr	
	0.004	0.29	

**Sub-Basin F (Onsite and Offsite)**

Total Area	0.05 acres	2,100 SF	Notes
Lawns, Sandy Soil	0.05 acres	2,100 SF	Landscape area drains as nuisance flow towards Baldwin Gulch per previous drainage patterns.
% Impervious (Composite)	2%		
Hydrologic Soil Group	B		
Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr	
	0.01	0.44	
One Hour Point Rainfall (in) (Table S.1 Town of Parker Manual)	5yr	100yr	
	1.39	2.6	
Rainfall Intensity (in/hr) (Equation RA-S UDCEK)	5yr	100yr	
	4.71	8.82	
Runoff (cfs)	5yr	100yr	
	0.002	0.19	

**Total Runoff (CFS)**

Total Area	2.09 acres	89,306 SF
Paved Area	0.90 acres	39,002 SF
Drive and Walks	0.09 acres	3,776 SF
Roofs	0.12 acres	5,336 SF
Lawns, Sandy Soil	0.95 acres	41,192 SF
% Impervious (Composite)	62%	
Hydrologic Soil Group	B	
Runoff (cfs)	5yr	100yr
	4.42	12.44



- EXISTING LEGEND:**
- PROPERTY LINE/RIGHT OF WAY LINE
  - COMMUNICATIONS MANHOLE
  - SANITARY SEWER MANHOLE
  - STORM SEWER MANHOLE
  - UNDERGROUND GAS LINES
  - UNDERGROUND COMMUNICATIONS LINES
  - UNDERGROUND STORM SEWER LINES

- PROPOSED LEGEND:**
- BASIN BOUNDARY
  - STORM DRAIN
  - DESIGN POINT

**FLOOD ZONE INFORMATION**  
SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", AREAS OF MINIMAL FLOOD HAZARD, AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM.  
MAP NUMBER: 08035C0067G  
EFFECTIVE DATE: MARCH 16, 2016

**BENCHMARK**  
DOUGLAS CONTROL MONUMENT #1 090535, A 3" ALUMINUM CAP.  
ELEVATION = 5906.34 FEET (NAVD1988), AS PUBLISHED BY DOUGLAS COUNTY

PROPOSED DRAINAGE MAP AND BASIN ARE BASED ON BASIN NO. 8 IN PARKER AND PINE RETAIL DRAINAGE REPORT PREPARED BY KIMLEY HORN ENGINEERING NOVEMBER 2019  
DETENTION IS PROVIDED FOR THE OVERALL DEVELOPMENT PER OVERALL DEVELOPER PLANS  
THE RUNOFF FROM THE PROPOSED QUICK N CLEAN SITE IS LESS THAN OR EQUAL TO THE RUNOFF ALLOCATED TO BASIN NO. 8 IN THE PARKER AND PINE RETAIL DRAINAGE REPORT

**Runoff Summary**

BASIN ID	AREA Ac	Q <sub>5</sub> CFS	Q <sub>100</sub> CFS
1.1	1.43	4.93	10.37
1.2	1.97	6.77	14.25
2.0	0.88	3.00	6.33
3.0	1.97	6.80	14.29
4.1	1.14	3.91	8.23
4.2	0.77	2.65	5.56
5.0	1.13	3.89	8.18
6.0	2.22	7.62	16.06
7.0	1.02	3.48	7.35
8.0	1.94	6.13	12.90
9.0	0.10	0.42	0.81
10.0	0.16	0.65	1.26
11.0	0.21	0.86	1.66
12.0	0.14	0.57	1.09
13.0	0.08	0.32	0.62
14.0	0.17	0.67	1.30
15.0	0.18	0.72	1.40
16.0	0.17	0.67	1.30
17.0	0.11	0.45	0.87
18.0	0.39	1.59	3.09

BASIN NO. 8 RUNOFF VALUES PER PARKER AND PINE RETAIL DRAINAGE REPORT

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR OF ENGINEERING / PUBLIC WORKS DATE



CEI ENGINEERING ASSOCIATES, INC.  
710 W. PINEDALE AVE.  
FRESNO, CA 93711  
PHONE: (559) 447-3119  
FAX: (559) 447-3129



PLANS PREPARED FOR  
QUICK N CLEAN  
7291 E. ADOBE DRIVE, SUITE 115  
SCOTTSDALE, AZ 85255  
PHONE: (480) 707-3531

**REVISION**

NO.	DESCRIPTION	DATE

PARKER AND PINE FILING NO.1 LOT 4 - CAR WASH  
9572 TWENTY MILE ROAD  
PARKER, COLORADO  
CONSTRUCTION DOCUMENTS

PROFESSIONAL OF RECORD ECL  
PROJECT MANAGER MS  
DESIGNER RM  
CEI PROJECT NUMBER 31672  
DATE 6/1/2025  
REVISION REV-7

DRAINAGE PLAN  
SHEET TITLE  
SHEET NUMBER

C6

DRAWING LOCATION: C:\ERICK LAWRENCE\PROJECT FILES\DRAINAGE\BANSO\BANSO\2025-05-30\01672 - DRAINAGE REPORT\REVISED\1672 - DP\31672\_DP\_2\_DWG - SANVED BY: EAVENBERG

ATTACHMENT 3

HYDROLOGIC CALCULATIONS

**Table 6-5. Runoff coefficients, *c***

Total or Effective % Impervious	NRCS Hydrologic Soil Group A						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.01	0.01	0.01	0.04	0.13	0.27
5%	0.02	0.02	0.02	0.03	0.07	0.15	0.29
10%	0.04	0.05	0.05	0.07	0.11	0.19	0.32
15%	0.07	0.08	0.08	0.1	0.15	0.23	0.35
20%	0.1	0.11	0.12	0.14	0.2	0.27	0.38
25%	0.14	0.15	0.16	0.19	0.24	0.3	0.42
30%	0.18	0.19	0.2	0.23	0.28	0.34	0.45
35%	0.21	0.23	0.24	0.27	0.32	0.38	0.48
40%	0.25	0.27	0.28	0.32	0.37	0.42	0.51
45%	0.3	0.31	0.33	0.36	0.41	0.46	0.54
50%	0.34	0.36	0.37	0.41	0.45	0.5	0.58
55%	0.39	0.4	0.42	0.45	0.49	0.54	0.61
60%	0.43	0.45	0.47	0.5	0.54	0.58	0.64
65%	0.48	0.5	0.51	0.54	0.58	0.62	0.67
70%	0.53	0.55	0.56	0.59	0.62	0.65	0.71
75%	0.58	0.6	0.61	0.64	0.66	0.69	0.74
80%	0.63	0.65	0.66	0.69	0.71	0.73	0.77
85%	0.68	0.7	0.71	0.74	0.75	0.77	0.8
90%	0.73	0.75	0.77	0.79	0.79	0.81	0.84
95%	0.79	0.81	0.82	0.83	0.84	0.85	0.87
100%	0.84	0.86	0.87	0.88	0.88	0.89	0.9
Total or Effective % Impervious	NRCS Hydrologic Soil Group B						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.01	0.07	0.26	0.34	0.44	0.54
5%	0.03	0.03	0.1	0.28	0.36	0.45	0.55
10%	0.06	0.07	0.14	0.31	0.38	0.47	0.57
15%	0.09	0.11	0.18	0.34	0.41	0.5	0.59
20%	0.13	0.15	0.22	0.38	0.44	0.52	0.61
25%	0.17	0.19	0.26	0.41	0.47	0.54	0.63
30%	0.2	0.23	0.3	0.44	0.49	0.57	0.65
35%	0.24	0.27	0.34	0.47	0.52	0.59	0.66
40%	0.29	0.32	0.38	0.5	0.55	0.61	0.68
45%	0.33	0.36	0.42	0.53	0.58	0.64	0.7
50%	0.37	0.4	0.46	0.56	0.61	0.66	0.72
55%	0.42	0.45	0.5	0.6	0.63	0.68	0.74
60%	0.46	0.49	0.54	0.63	0.66	0.71	0.76
65%	0.5	0.54	0.58	0.66	0.69	0.73	0.77
70%	0.55	0.58	0.62	0.69	0.72	0.75	0.79
75%	0.6	0.63	0.66	0.72	0.75	0.78	0.81
80%	0.64	0.67	0.7	0.75	0.77	0.8	0.83
85%	0.69	0.72	0.74	0.78	0.8	0.82	0.85
90%	0.74	0.76	0.78	0.81	0.83	0.84	0.87
95%	0.79	0.81	0.82	0.85	0.86	0.87	0.88
100%	0.84	0.86	0.86	0.88	0.89	0.89	0.9

# POST DEVELOPMENT STORMWATER RUNOFF

Rational Method

Project: Parker and Pine Filing No.1 Lot 4 Car Wash

Address: 9572 Twenty Mile Rd

Parker, CO

Based Upon: City of Parker and UDFCD Drainage Manual

## Time of Concentration

	Min	Notes
Tc	5	Min. Tc for urbanized conditions

## Sub-Basin A (Onsite and Offsite)

Total Area	0.01	acres	350	SF	Notes
Paved Area	0.01	acres	350	SF	Area drains to existing curb inlet at northwest corner of site
Drive and Walks	0.00	acres	0	SF	
Lawns, Sandy Soil	0.00	acres	0	SF	
% Impervious (Composite)	100	%			

Hydrologic Soil Group B

Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr
	0.86	0.89
One Hour Point Rainfall (in) (Table 5.1 Town of Parker Manual)	5yr	100yr
	1.39	2.6
Rainfall Intensity (in/hr) (Equation RA-5 UDFCD)	5yr	100yr
	4.71	8.82
Runoff (cfs)	5yr	100yr
	0.03	0.06

## Sub-Basin B (Onsite and Offsite)

Total Area	0.34	acres	14,760	SF	Notes
Paved Area	0.20	acres	8,845	SF	Area drains to proposed grate inlet in drive aisle
Drive and Walks	0.01	acres	512	SF	
Lawns, Sandy Soil	0.12	acres	5,403	SF	
% Impervious (Composite)	64	%			

Hydrologic Soil Group B

Runoff Coefficient (UDFCD NRCS Table)	5yr	100yr
	0.51	0.72
One Hour Point Rainfall (in) (Table 5.1 Town of Parker Manual)	5yr	100yr
	1.39	2.6
Rainfall Intensity (in/hr) (Equation RA-5 UDFCD)	5yr	100yr
	4.71	8.82
Runoff (cfs)	5yr	100yr
	0.82	2.17

<b>Sub-Basin C (Onsite and Offsite)</b>					
<b>Total Area</b>	1.04	acres	45,192	SF	Notes
					Area drains towards proposed curb inlet CI-1 in parking area
<b>Paved Area</b>	0.68	acres	29,807	SF	
<b>Drive and Walks</b>	0.06	acres	2,590	SF	
<b>Roofs</b>	0.12	acres	5,336	SF	
<b>Lawns, Sandy Soil</b>	0.17	acres	7,459	SF	
<b>% Impervious (Composite)</b>	82	%			
<b>Hydrologic Soil Group</b>	B				
<b>Runoff Coefficient (UDFCD NRCS Table)</b>	5yr	100yr			
	0.71	0.82			
<b>One Hour Point Rainfall (in) (Table 5.1 Town of Parker Manual)</b>	5yr	100yr			
	1.39	2.6			
<b>Rainfall Intensity (in/hr) (Equation RA-5 UDFCFC)</b>	5yr	100yr			
	4.71	8.82			
<b>Runoff (cfs)</b>	5yr	100yr			
	3.50	7.56			
<b>Sub-Basin D (Onsite and Offsite)</b>					
<b>Total Area</b>	0.54	acres	23,679	SF	Notes
<b>Drives and Walks</b>	0.02	acres	674	SF	
					Area drains towards proposed yard inlet YI-1 at southwest corner of site
<b>Lawns, Sandy Soil</b>	0.53	acres	23,005	SF	
<b>% Impervious (Composite)</b>	5	%			
<b>Hydrologic Soil Group</b>	B				
<b>Runoff Coefficient (UDFCD NRCS Table)</b>	5yr	100yr			
	0.02	0.45			
<b>One Hour Point Rainfall (in) (Table 5.1 Town of Parker Manual)</b>	5yr	100yr			
	1.39	2.6			
<b>Rainfall Intensity (in/hr) (Equation RA-5 UDFCFC)</b>	5yr	100yr			
	4.71	8.82			
<b>Runoff (cfs)</b>	5yr	100yr			
	0.06	2.16			
<b>Sub-Basin E (Onsite and Offsite)</b>					
<b>Total Area</b>	0.07	acres	3,225	SF	Notes
					Landscape area drains as nuisance flow towards Baldwin Gulch per previous drainage patterns.
<b>Lawns, Sandy Soil</b>	0.07	acres	3,225	SF	
<b>% Impervious (Composite)</b>	2	%			
<b>Hydrologic Soil Group</b>	B				
<b>Runoff Coefficient (UDFCD NRCS Table)</b>	5yr	100yr			
	0.01	0.44			
<b>One Hour Point Rainfall (in) (Table 5.1 Town of Parker Manual)</b>	5yr	100yr			
	1.39	2.6			
<b>Rainfall Intensity (in/hr) (Equation RA-5 UDFCFC)</b>	5yr	100yr			
	4.71	8.82			
<b>Runoff (cfs)</b>	5yr	100yr			
	0.004	0.29			

<b>Sub-Basin F (Onsite and Offsite)</b>					
<b>Total Area</b>	0.05	acres	2,100	SF	Notes
					Landscape area drains as nuisance flow towards Baldwin Gulch per previous drainage patterns.
<b>Lawns, Sandy Soil</b>	0.05	acres	2,100	SF	
<b>% Impervious (Composite)</b>	2	%			
<b>Hydrologic Soil Group</b>	B				
<b>Runoff Coefficient (UDFCD NRCS Table)</b>	5yr	100yr			
	0.01		0.44		
<b>One Hour Point Rainfall (in) (Table 5.1 Town of Parker Manual)</b>	5yr	100yr			
	1.39		2.6		
<b>Rainfall Intensity (in/hr) (Equation RA-5 UDCFC)</b>	5yr	100yr			
	4.71		8.82		
<b>Runoff (cfs)</b>	5yr	100yr			
	0.002		0.19		
<b>Total Runoff (CFS)</b>					
<b>Total Area</b>	2.05	acres	89,306	SF	
<b>Paved Area</b>	0.90	acres	39,002	SF	
<b>Drive and Walks</b>	0.09	acres	3,776	SF	
<b>Roofs</b>	0.12	acres	5,336	SF	
<b>Lawns, Sandy Soil</b>	0.95	acres	41,192	SF	
<b>% Impervious (Composite)</b>	62	%			
<b>Hydrologic Soil Group</b>	B				
<b>Runoff (cfs)</b>	5yr	100yr			
	4.42		12.44		

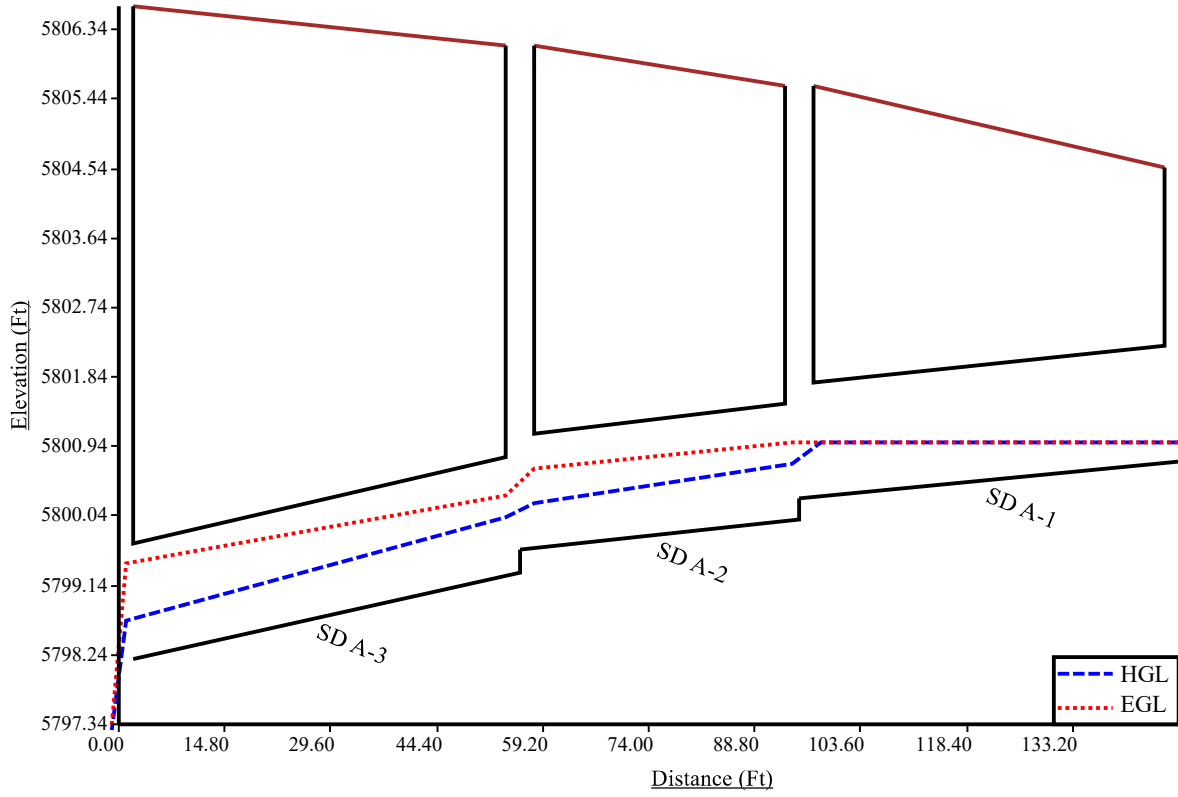
**STORM DRAIN ROUTING SUMMARY**

<b>SUB-BASIN ID</b>	<b>AREA (AC)</b>	<b>DESIGN POINT</b>	<b>Q5 (CFS)</b>	<b>Q100 (CFS)</b>	<b>NOTES</b>
A	0.34	1	0.03	0.06	FLOWS FROM SUB-BASIN A ROUTE TO CURB INLET AT NORTHWEST CORNER OF SITE
17.0 (PER DEVELOPER DRAINAGE REPORT)	0.11	1	0.45	0.87	FLOWS FROM DESIGN SUB- BASIN 17.0 PER PARKER AND PINE RETAIL DRAINAGE REPORT ROUTE TO CURB INLET (B08) AT NORTHWEST CORNER OF SITE
TOTAL	0.45	1	0.48	0.93	
B	0.34	2	0.82	2.17	FLOWS FROM SUB-BASIN B ROUTE TO GRATE INLET GI-1 IN DRIVE AISLE
C	1.04	3	3.50	7.56	FLOWS FROM SUB-BASIN C ROUTE TO CURB INLET CI-1 IN PARKING AREA
D	0.56	4	0.06	2.21	FLOWS FROM SUB-BASIN D ROUTE THROUGH LANDSCAPE SWALE TO YARD INLET YI-1 AT SOUTHWEST CORNER OF SITE
E	0.06	5	0.003	0.24	DRAINAGE FROM SUB-BASIN E FLOWS OFFSITE AS NUISANCE WATER TOWARDS BALDWIN GULCH PER PREVIOUS DRAINAGE PATTERNS
F	0.05	6	0.002	0.19	DRAINAGE FROM SUB-BASIN F FLOWS OFFSITE AS NUISANCE WATER TOWARDS BALDWIN GULCH PER PREVIOUS DRAINAGE PATTERNS

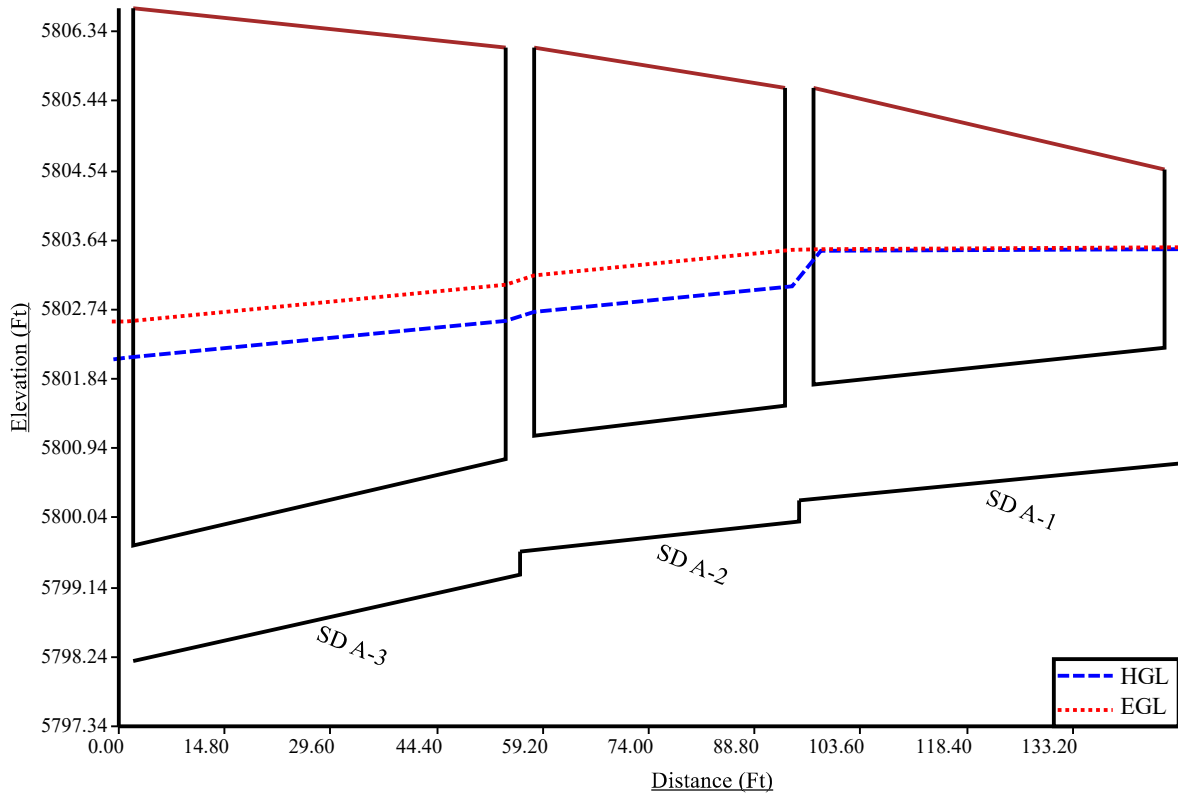
ATTACHMENT 4

HYDRAULIC CALCULATIONS

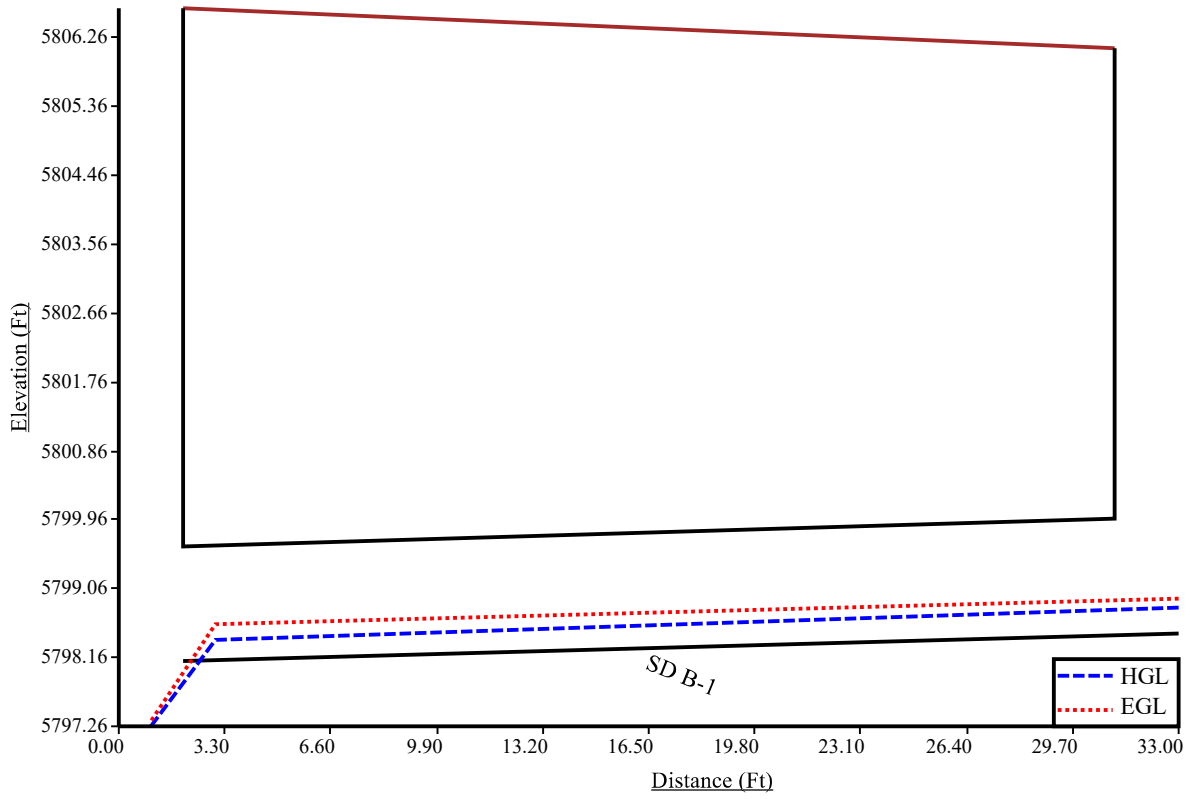
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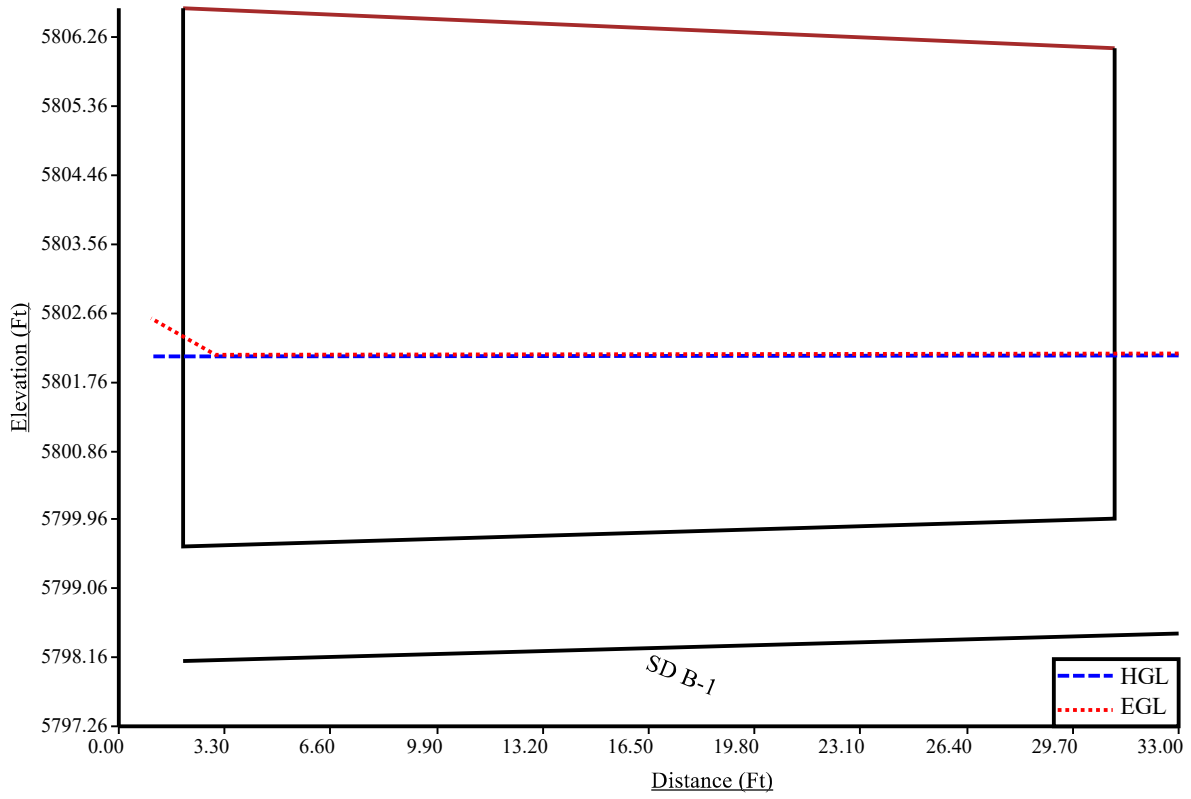
# 31672 - Storm Sewer A - 100yr



# 31672 - Storm Sewer B - 5yr



# 31672 - Storm Sewer B - 100yr

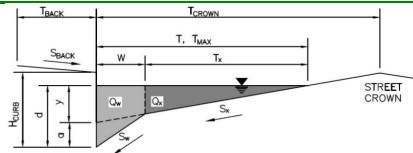


## ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:  
Inlet ID:

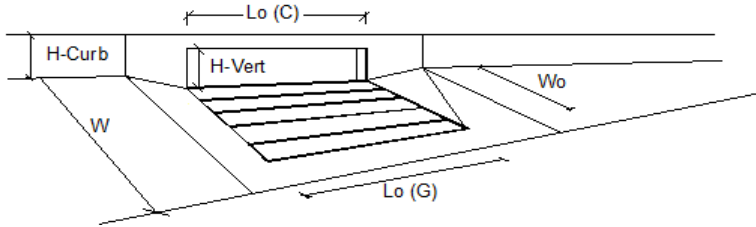
31672 - Parker and Pine Filing No.1 Lot 4 – Car Wash  
Existing Curb Inlet-B08



Gutter Geometry:									
Maximum Allowable Width for Spread Behind Curb	$T_{BACK} = $ <input style="width: 50px; text-align: center;" type="text" value="0.0"/> ft								
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	$S_{BACK} = $ <input style="width: 50px;" type="text"/> ft/ft								
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	$n_{BACK} = $ <input style="width: 50px; text-align: center;" type="text" value="0.012"/>								
Height of Curb at Gutter Flow Line	$H_{CURB} = $ <input style="width: 50px; text-align: center;" type="text" value="6.00"/> inches								
Distance from Curb Face to Street Crown	$T_{CROWN} = $ <input style="width: 50px; text-align: center;" type="text" value="13.0"/> ft								
Gutter Width	$W = $ <input style="width: 50px; text-align: center;" type="text" value="1.00"/> ft								
Street Transverse Slope	$S_x = $ <input style="width: 50px; text-align: center;" type="text" value="0.021"/> ft/ft								
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	$S_w = $ <input style="width: 50px; text-align: center;" type="text" value="0.083"/> ft/ft								
Street Longitudinal Slope - Enter 0 for sump condition	$S_o = $ <input style="width: 50px; text-align: center;" type="text" value="0.021"/> ft/ft								
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	$n_{STREET} = $ <input style="width: 50px; text-align: center;" type="text" value="0.012"/>								
Max. Allowable Spread for Minor & Major Storm	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center; border-bottom: 1px solid black;">Minor Storm</td> <td style="text-align: center; border-bottom: 1px solid black;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td style="border-right: 1px solid black;"><math>T_{MAX} = </math></td> <td style="text-align: center; border: 1px solid black;"><input style="width: 40px; text-align: center;" type="text" value="13.0"/></td> <td style="text-align: center; border: 1px solid black;"><input style="width: 40px; text-align: center;" type="text" value="13.0"/></td> <td style="text-align: right; border: none;">ft</td> </tr> </table>		Minor Storm	Major Storm		$T_{MAX} = $	<input style="width: 40px; text-align: center;" type="text" value="13.0"/>	<input style="width: 40px; text-align: center;" type="text" value="13.0"/>	ft
	Minor Storm	Major Storm							
$T_{MAX} = $	<input style="width: 40px; text-align: center;" type="text" value="13.0"/>	<input style="width: 40px; text-align: center;" type="text" value="13.0"/>	ft						
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center; border-bottom: 1px solid black;">Minor Storm</td> <td style="text-align: center; border-bottom: 1px solid black;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td style="border-right: 1px solid black;"><math>d_{MAX} = </math></td> <td style="text-align: center; border: 1px solid black;"><input style="width: 40px; text-align: center;" type="text" value="6.0"/></td> <td style="text-align: center; border: 1px solid black;"><input style="width: 40px; text-align: center;" type="text" value="6.0"/></td> <td style="text-align: right; border: none;">inches</td> </tr> </table>		Minor Storm	Major Storm		$d_{MAX} = $	<input style="width: 40px; text-align: center;" type="text" value="6.0"/>	<input style="width: 40px; text-align: center;" type="text" value="6.0"/>	inches
	Minor Storm	Major Storm							
$d_{MAX} = $	<input style="width: 40px; text-align: center;" type="text" value="6.0"/>	<input style="width: 40px; text-align: center;" type="text" value="6.0"/>	inches						
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center; border-bottom: 1px solid black;">Minor Storm</td> <td style="text-align: center; border-bottom: 1px solid black;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td style="border-right: 1px solid black;"></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="border: none;"></td> </tr> </table>		Minor Storm	Major Storm			<input type="checkbox"/>	<input type="checkbox"/>	
	Minor Storm	Major Storm							
	<input type="checkbox"/>	<input type="checkbox"/>							
<a href="#">MINOR STORM Allowable Capacity is based on Spread Criterion</a>									
<a href="#">MAJOR STORM Allowable Capacity is based on Spread Criterion</a>									
<b>Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'</b>									
<b>Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'</b>									
$Q_{allow} = $	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center; border-bottom: 1px solid black;">Minor Storm</td> <td style="text-align: center; border-bottom: 1px solid black;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td style="border-right: 1px solid black;"><math>Q_{allow} = </math></td> <td style="text-align: center; border: 1px solid black;"><input style="width: 40px; text-align: center;" type="text" value="10.5"/></td> <td style="text-align: center; border: 1px solid black;"><input style="width: 40px; text-align: center;" type="text" value="10.5"/></td> <td style="text-align: right; border: none;">cfs</td> </tr> </table>		Minor Storm	Major Storm		$Q_{allow} = $	<input style="width: 40px; text-align: center;" type="text" value="10.5"/>	<input style="width: 40px; text-align: center;" type="text" value="10.5"/>	cfs
	Minor Storm	Major Storm							
$Q_{allow} = $	<input style="width: 40px; text-align: center;" type="text" value="10.5"/>	<input style="width: 40px; text-align: center;" type="text" value="10.5"/>	cfs						

## INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 5.01 (April 2021)



Design Information (Input)	MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	0.10	0.10	
<b>Street Hydraulics: OK - Q &lt; Allowable Street Capacity</b>			
Total Inlet Interception Capacity	Q = 0.5	0.9	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)	Q <sub>b</sub> = 0.0	0.0	cfs
Capture Percentage = Q <sub>i</sub> /Q <sub>s</sub> =	C% = 100	100	%

## ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

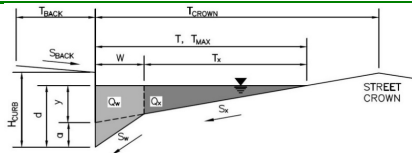
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

31672 - Parker and Pine Filing No.1 Lot 4 – Car Wash

Inlet ID:

Grate Inlet GI-1



**Gutter Geometry:**

Maximum Allowable Width for Spread Behind Curb  
 Side Slope Behind Curb (leave blank for no conveyance credit behind curb)  
 Manning's Roughness Behind Curb (typically between 0.012 and 0.020)  
 Height of Curb at Gutter Flow Line  
 Distance from Curb Face to Street Crown  
 Gutter Width  
 Street Transverse Slope  
 Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)  
 Street Longitudinal Slope - Enter 0 for sump condition  
 Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$   ft  
 $S_{BACK} =$   ft/ft  
 $n_{BACK} =$

$H_{CURB} =$   inches  
 $T_{CROWN} =$   ft  
 $W =$   ft  
 $S_x =$   ft/ft  
 $S_w =$   ft/ft  
 $S_o =$   ft/ft  
 $n_{STREET} =$

Max. Allowable Spread for Minor & Major Storm  
 Max. Allowable Depth at Gutter Flowline for Minor & Major Storm  
 Check boxes are not applicable in SUMP conditions

	Minor Storm	Major Storm	
$T_{MAX} =$	<input type="text" value="20.0"/>	<input type="text" value="20.0"/>	ft
$d_{MAX} =$	<input type="text" value="6.0"/>	<input type="text" value="6.0"/>	inches
	<input type="checkbox"/>	<input type="checkbox"/>	

MINOR STORM Allowable Capacity is based on Depth Criterion  
 MAJOR STORM Allowable Capacity is based on Depth Criterion

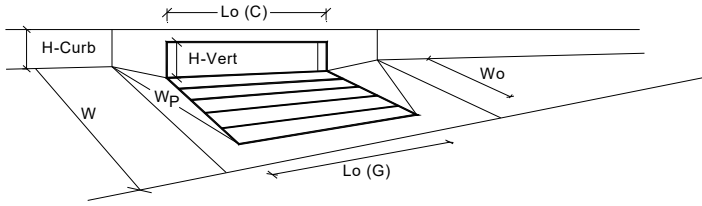
$Q_{allow} =$ 

Minor Storm	Major Storm
<input type="text" value="SUMP"/>	<input type="text" value="SUMP"/>

 cfs

# INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.01 (April 2021)



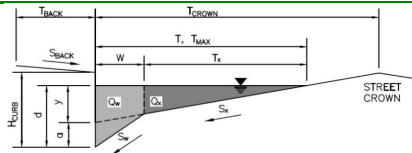
Design Information (Input)	MINOR	MAJOR	
Type of Inlet	CDOT/Denver 13 Valley Grate		
Local Depression (additional to continuous gutter depression 'a' from above)	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	1	1	
Water Depth at Flowline (outside of local depression)	6.0	6.0	inches
<b>Grate Information</b>	MINOR	MAJOR	<input checked="" type="checkbox"/> Override Depths
Length of a Unit Grate	3.00	3.00	feet
Width of a Unit Grate	1.73	1.73	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	0.43	0.43	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	3.30	3.30	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	0.60	0.60	
<b>Curb Opening Information</b>	MINOR	MAJOR	
Length of a Unit Curb Opening	N/A	N/A	feet
Height of Vertical Curb Opening in Inches	N/A	N/A	inches
Height of Curb Orifice Throat in Inches	N/A	N/A	inches
Angle of Throat (see USDCM Figure ST-5)	N/A	N/A	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	N/A	N/A	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	N/A	N/A	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	N/A	N/A	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	N/A	N/A	
<b>Low Head Performance Reduction (Calculated)</b>	MINOR	MAJOR	
Depth for Grate Midwidth	0.593	0.593	ft
Depth for Curb Opening Weir Equation	N/A	N/A	ft
Combination Inlet Performance Reduction Factor for Long Inlets	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	N/A	N/A	
Grated Inlet Performance Reduction Factor for Long Inlets	0.94	0.94	
Total Inlet Interception Capacity (assumes clogged condition)	3.2	3.2	cfs
<b>Inlet Capacity IS GOOD for Minor and Major Storms(&gt;Q PEAK)</b>	0.8	2.2	cfs

## ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:  
Inlet ID:

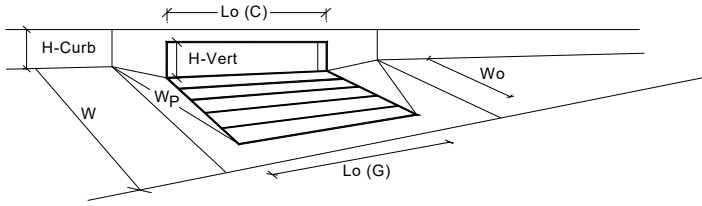
31672 - Parker and Pine Filing No.1 Lot 4 – Car Wash  
Curb Inlet CI-1



Gutter Geometry:					
Maximum Allowable Width for Spread Behind Curb	$T_{BACK} = $ <input style="width: 50px;" type="text" value="0.0"/> ft				
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	$S_{BACK} = $ <input style="width: 50px;" type="text"/> ft/ft				
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	$n_{BACK} = $ <input style="width: 50px;" type="text" value="0.012"/>				
Height of Curb at Gutter Flow Line	$H_{CURB} = $ <input style="width: 50px;" type="text" value="6.00"/> inches				
Distance from Curb Face to Street Crown	$T_{CROWN} = $ <input style="width: 50px;" type="text" value="20.0"/> ft				
Gutter Width	$W = $ <input style="width: 50px;" type="text" value="0.50"/> ft				
Street Transverse Slope	$S_x = $ <input style="width: 50px;" type="text" value="0.011"/> ft/ft				
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	$S_w = $ <input style="width: 50px;" type="text" value="0.083"/> ft/ft				
Street Longitudinal Slope - Enter 0 for sump condition	$S_o = $ <input style="width: 50px;" type="text" value="0.000"/> ft/ft				
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	$n_{STREET} = $ <input style="width: 50px;" type="text" value="0.012"/>				
Max. Allowable Spread for Minor & Major Storm	$T_{MAX} = $ <table style="display: inline-table; border: none;"><tr><td style="border: none; padding: 0 10px;">Minor Storm</td><td style="border: none; padding: 0 10px;">Major Storm</td></tr><tr><td style="border: 1px solid black; width: 50px; text-align: center;">20.0</td><td style="border: 1px solid black; width: 50px; text-align: center;">20.0</td></tr></table> ft	Minor Storm	Major Storm	20.0	20.0
Minor Storm	Major Storm				
20.0	20.0				
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	$d_{MAX} = $ <table style="display: inline-table; border: none;"><tr><td style="border: none; padding: 0 10px;">Minor Storm</td><td style="border: none; padding: 0 10px;">Major Storm</td></tr><tr><td style="border: 1px solid black; width: 50px; text-align: center;">6.0</td><td style="border: 1px solid black; width: 50px; text-align: center;">6.0</td></tr></table> inches	Minor Storm	Major Storm	6.0	6.0
Minor Storm	Major Storm				
6.0	6.0				
Check boxes are not applicable in SUMP conditions	<input type="checkbox"/> <input type="checkbox"/>				
<a href="#">MINOR STORM Allowable Capacity is based on Depth Criterion</a>	$Q_{allow} = $ <table style="display: inline-table; border: none;"><tr><td style="border: none; padding: 0 10px;">Minor Storm</td><td style="border: none; padding: 0 10px;">Major Storm</td></tr><tr><td style="border: 1px solid black; width: 50px; text-align: center;">SUMP</td><td style="border: 1px solid black; width: 50px; text-align: center;">SUMP</td></tr></table> cfs	Minor Storm	Major Storm	SUMP	SUMP
Minor Storm	Major Storm				
SUMP	SUMP				
<a href="#">MAJOR STORM Allowable Capacity is based on Depth Criterion</a>					

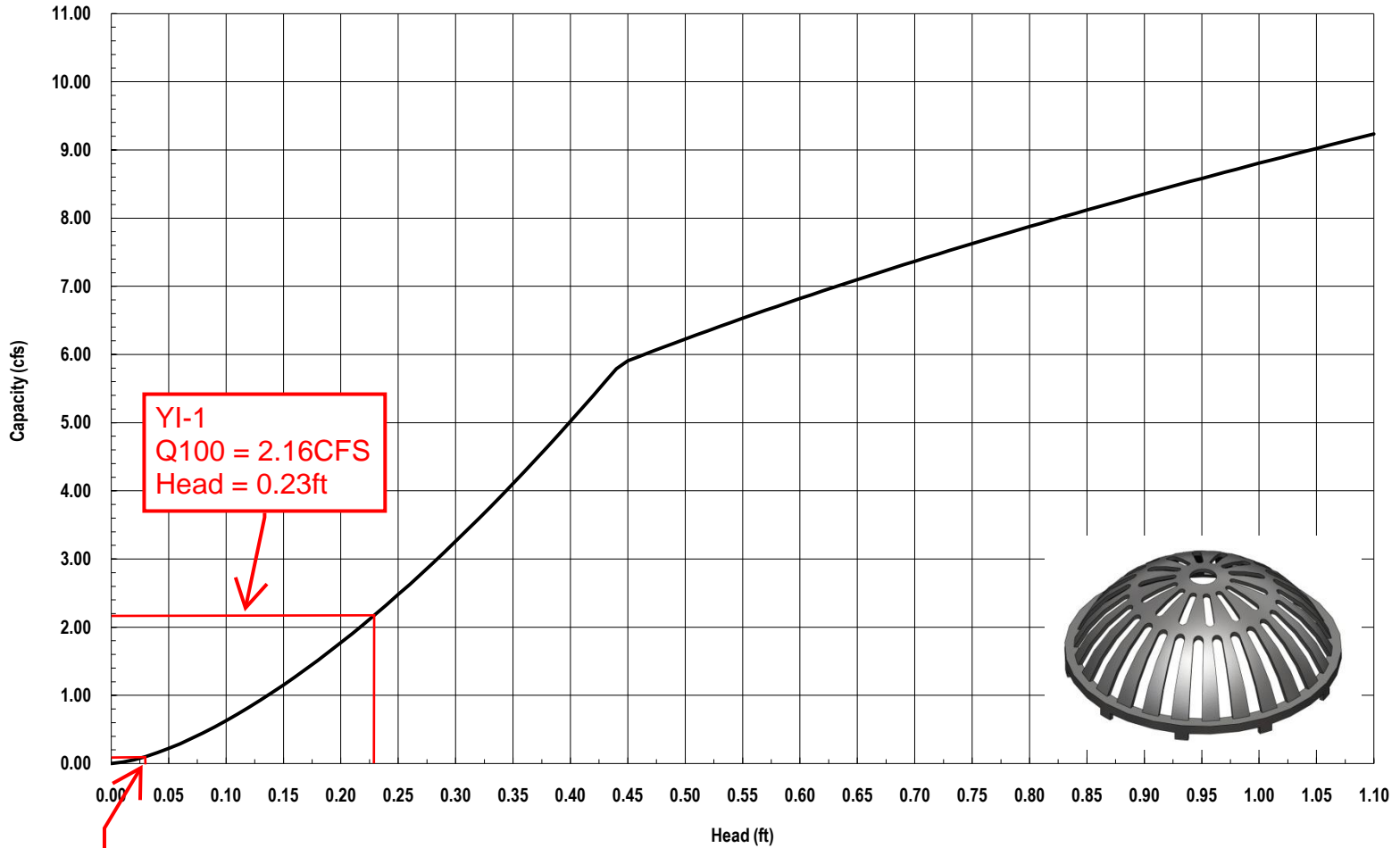
# INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.01 (April 2021)



Design Information (Input)	MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	1	1	
Water Depth at Flowline (outside of local depression)	4.0	6.0	inches
<b>Grate Information</b>	MINOR	MAJOR	<input checked="" type="checkbox"/> Override Depths
Length of a Unit Grate	N/A	N/A	feet
Width of a Unit Grate	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	N/A	N/A	
<b>Curb Opening Information</b>	MINOR	MAJOR	
Length of a Unit Curb Opening	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	0.50	0.50	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	0.67	0.67	
<b>Low Head Performance Reduction (Calculated)</b>	MINOR	MAJOR	
Depth for Grate Midwidth	N/A	N/A	ft
Depth for Curb Opening Weir Equation	0.29	0.46	ft
Combination Inlet Performance Reduction Factor for Long Inlets	0.38	0.57	
Curb Opening Performance Reduction Factor for Long Inlets	0.79	0.93	
Grated Inlet Performance Reduction Factor for Long Inlets	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)	MINOR	MAJOR	
<b>Inlet Capacity IS GOOD for Minor and Major Storms(&gt;Q PEAK)</b>	4.6	10.7	cfs
Q <sub>PEAK REQUIRED</sub>	3.5	7.6	cfs

# Nyloplast 24" Dome Grate Inlet Capacity Chart



YI-1  
Q5 = 0.06CFS  
Head = 0.03ft



3130 Verona Avenue • Buford, GA 30518  
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490  
© Nyloplast Inlet Capacity Charts June 2012

# INLET MANAGEMENT

Worksheet Protected

<b>INLET NAME</b>	<a href="#">Curb &amp; Gutter to YI-1</a>
Site Type (Urban or Rural)	URBAN
Inlet Application (Street or Area)	STREET
Hydraulic Condition	On Grade
Inlet Type	

## USER-DEFINED INPUT

<b>User-Defined Design Flows</b>	
Minor $Q_{Known}$ (cfs)	0.1
Major $Q_{Known}$ (cfs)	2.2
<b>Bypass (Carry-Over) Flow from Upstream</b>	
Receive Bypass Flow from:	No Bypass Flow Received
Minor Bypass Flow Received, $Q_b$ (cfs)	0.0
Major Bypass Flow Received, $Q_b$ (cfs)	0.0
<b>Watershed Characteristics</b>	
Subcatchment Area (acres)	
Percent Impervious	
NRCS Soil Type	
<b>Watershed Profile</b>	
Overland Slope (ft/ft)	
Overland Length (ft)	
Channel Slope (ft/ft)	
Channel Length (ft)	
<b>Minor Storm Rainfall Input</b>	
Design Storm Return Period, $T_r$ (years)	
One-Hour Precipitation, $P_1$ (inches)	
<b>Major Storm Rainfall Input</b>	
Design Storm Return Period, $T_r$ (years)	
One-Hour Precipitation, $P_1$ (inches)	

## CALCULATED OUTPUT

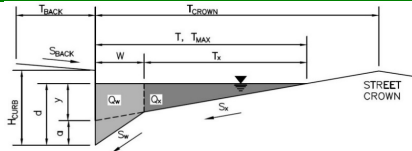
<b>Minor Total Design Peak Flow, <math>Q</math> (cfs)</b>	<b>0.1</b>
<b>Major Total Design Peak Flow, <math>Q</math> (cfs)</b>	<b>2.2</b>
Minor Flow Bypassed Downstream, $Q_b$ (cfs)	
Major Flow Bypassed Downstream, $Q_b$ (cfs)	

## ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:  
Inlet ID:

31672 - Parker and Pine Filing No.1 Lot 4 – Car Wash  
Curb & Gutter to YI-1



Gutter Geometry:					
Maximum Allowable Width for Spread Behind Curb	$T_{BACK} =$ <input type="text" value="0.0"/> ft				
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	$S_{BACK} =$ <input type="text" value=""/> ft/ft				
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	$n_{BACK} =$ <input type="text" value="0.012"/>				
Height of Curb at Gutter Flow Line	$H_{CURB} =$ <input type="text" value="9.00"/> inches				
Distance from Curb Face to Street Crown	$T_{CROWN} =$ <input type="text" value="4.5"/> ft				
Gutter Width	$W =$ <input type="text" value="1.50"/> ft				
Street Transverse Slope	$S_X =$ <input type="text" value="0.330"/> ft/ft				
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	$S_W =$ <input type="text" value="0.330"/> ft/ft				
Street Longitudinal Slope - Enter 0 for sump condition	$S_0 =$ <input type="text" value="0.005"/> ft/ft				
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	$n_{STREET} =$ <input type="text" value="0.020"/>				
Max. Allowable Spread for Minor & Major Storm	$T_{MAX} =$ <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><th style="padding: 2px;">Minor Storm</th><th style="padding: 2px;">Major Storm</th></tr><tr><td style="text-align: center; padding: 2px;">4.5</td><td style="text-align: center; padding: 2px;">4.5</td></tr></table> ft	Minor Storm	Major Storm	4.5	4.5
Minor Storm	Major Storm				
4.5	4.5				
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	$d_{MAX} =$ <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><th style="padding: 2px;">Minor Storm</th><th style="padding: 2px;">Major Storm</th></tr><tr><td style="text-align: center; padding: 2px;">9.0</td><td style="text-align: center; padding: 2px;">9.0</td></tr></table> inches	Minor Storm	Major Storm	9.0	9.0
Minor Storm	Major Storm				
9.0	9.0				
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)	<input type="checkbox"/> <input type="checkbox"/>				
MINOR STORM Allowable Capacity is based on Depth Criterion	$Q_{allow} =$ <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><th style="padding: 2px;">Minor Storm</th><th style="padding: 2px;">Major Storm</th></tr><tr><td style="text-align: center; padding: 2px;">2.9</td><td style="text-align: center; padding: 2px;">2.9</td></tr></table> cfs	Minor Storm	Major Storm	2.9	2.9
Minor Storm		Major Storm			
2.9	2.9				
MAJOR STORM Allowable Capacity is based on Depth Criterion					
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'					
Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'					

# Channel Report

## Sub-Basin C - Landscape Swale - 5yr

### Triangular

Side Slopes (z:1) = 3.00, 4.00  
Total Depth (ft) = 1.50

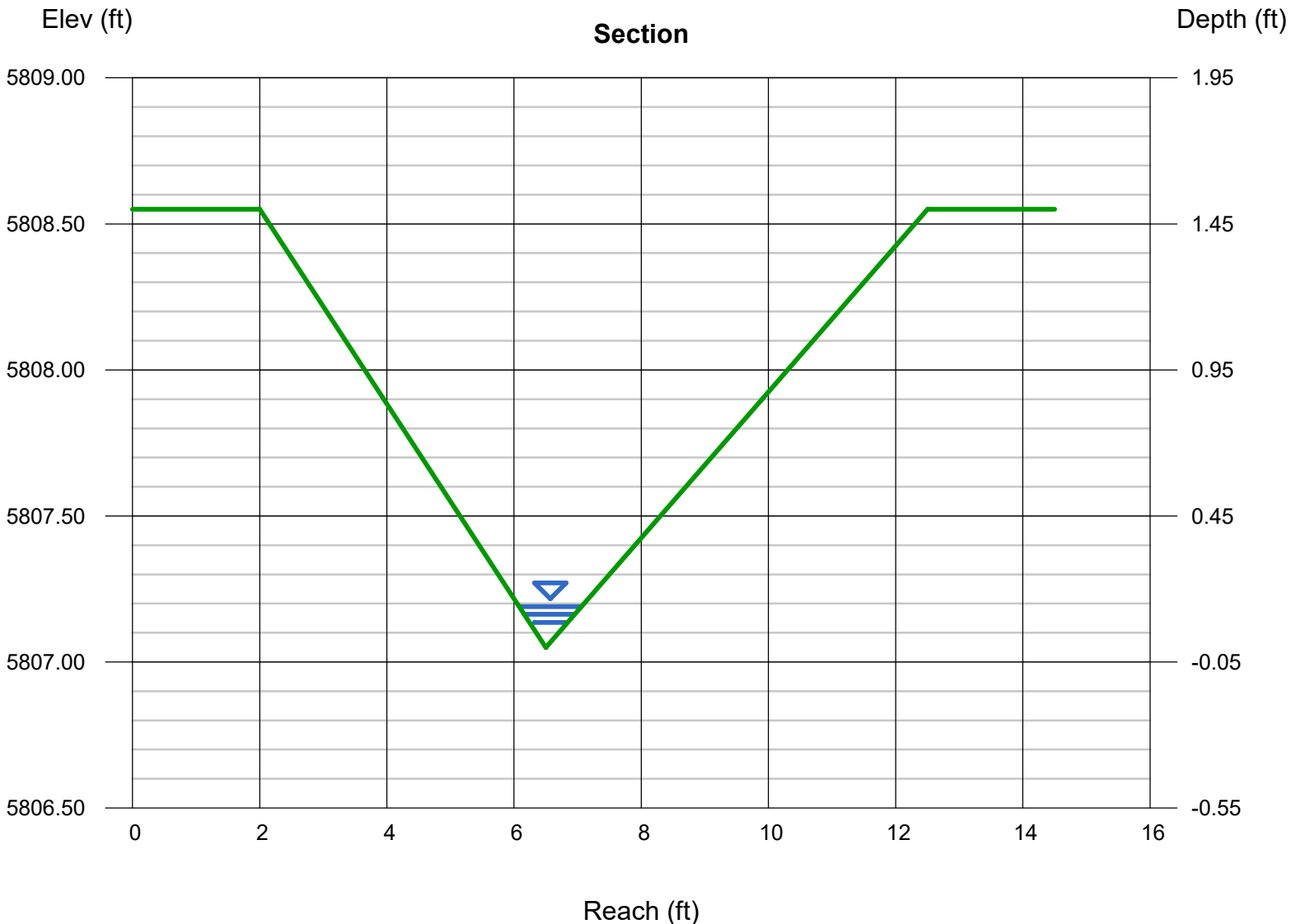
Invert Elev (ft) = 5807.05  
Slope (%) = 2.40  
N-Value = 0.040

### Calculations

Compute by: Known Q  
Known Q (cfs) = 0.06

### Highlighted

Depth (ft) = 0.14  
Q (cfs) = 0.060  
Area (sqft) = 0.07  
Velocity (ft/s) = 0.87  
Wetted Perim (ft) = 1.02  
Crit Depth, Yc (ft) = 0.12  
Top Width (ft) = 0.98  
EGL (ft) = 0.15



# Channel Report

## Sub-Basin C - Landscape Swale - 100yr

### Triangular

Side Slopes (z:1) = 3.00, 4.00

Total Depth (ft) = 1.50

Invert Elev (ft) = 5807.05

Slope (%) = 2.40

N-Value = 0.040

### Calculations

Compute by: Known Q

Known Q (cfs) = 2.16

### Highlighted

Depth (ft) = 0.53

Q (cfs) = 2.160

Area (sqft) = 0.98

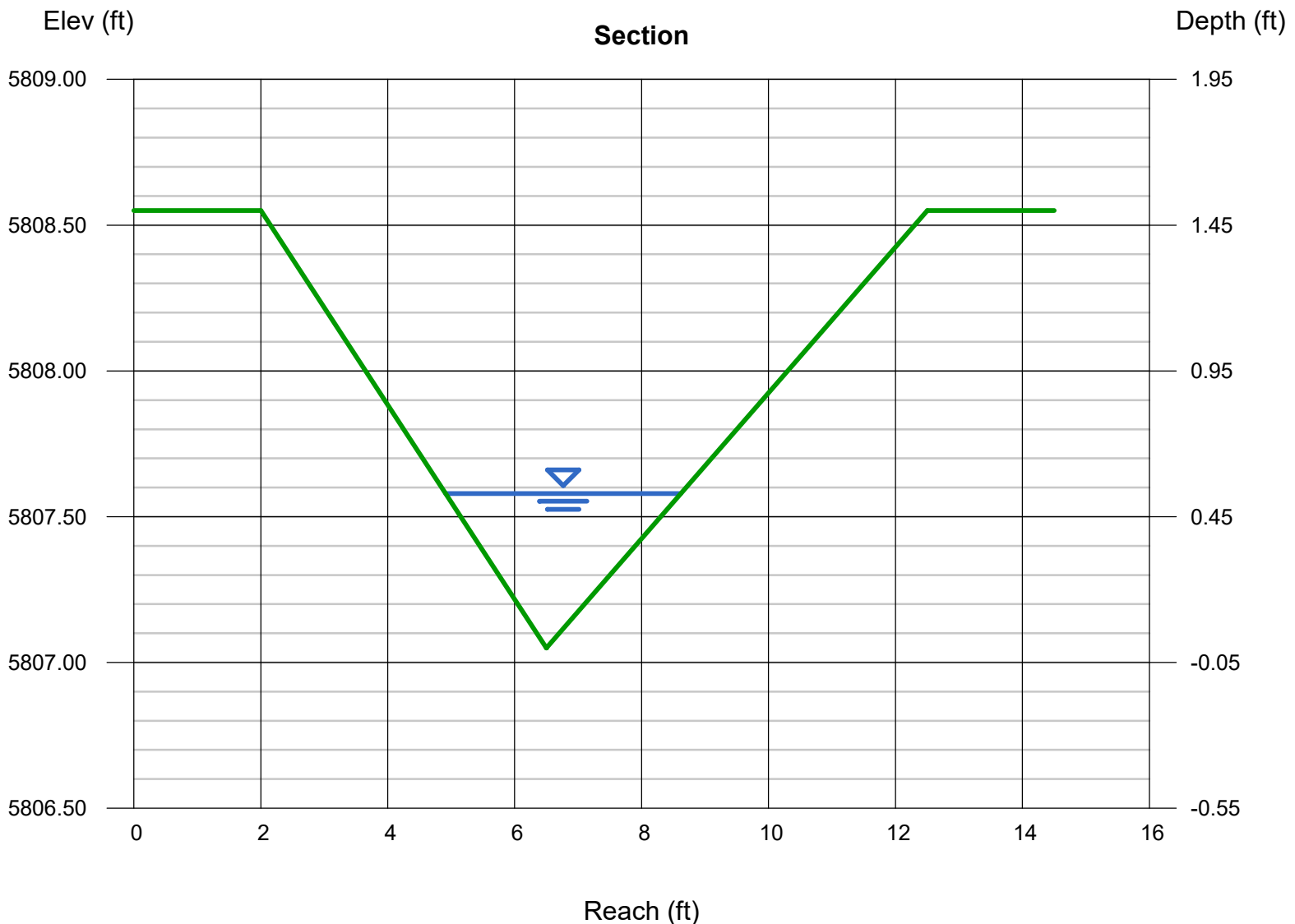
Velocity (ft/s) = 2.20

Wetted Perim (ft) = 3.86

Crit Depth, Yc (ft) = 0.48

Top Width (ft) = 3.71

EGL (ft) = 0.61



# Channel Report

## Sub-Basin D - Landscape Swale - 5yr

### Triangular

Side Slopes (z:1) = 5.00, 3.40  
Total Depth (ft) = 1.00

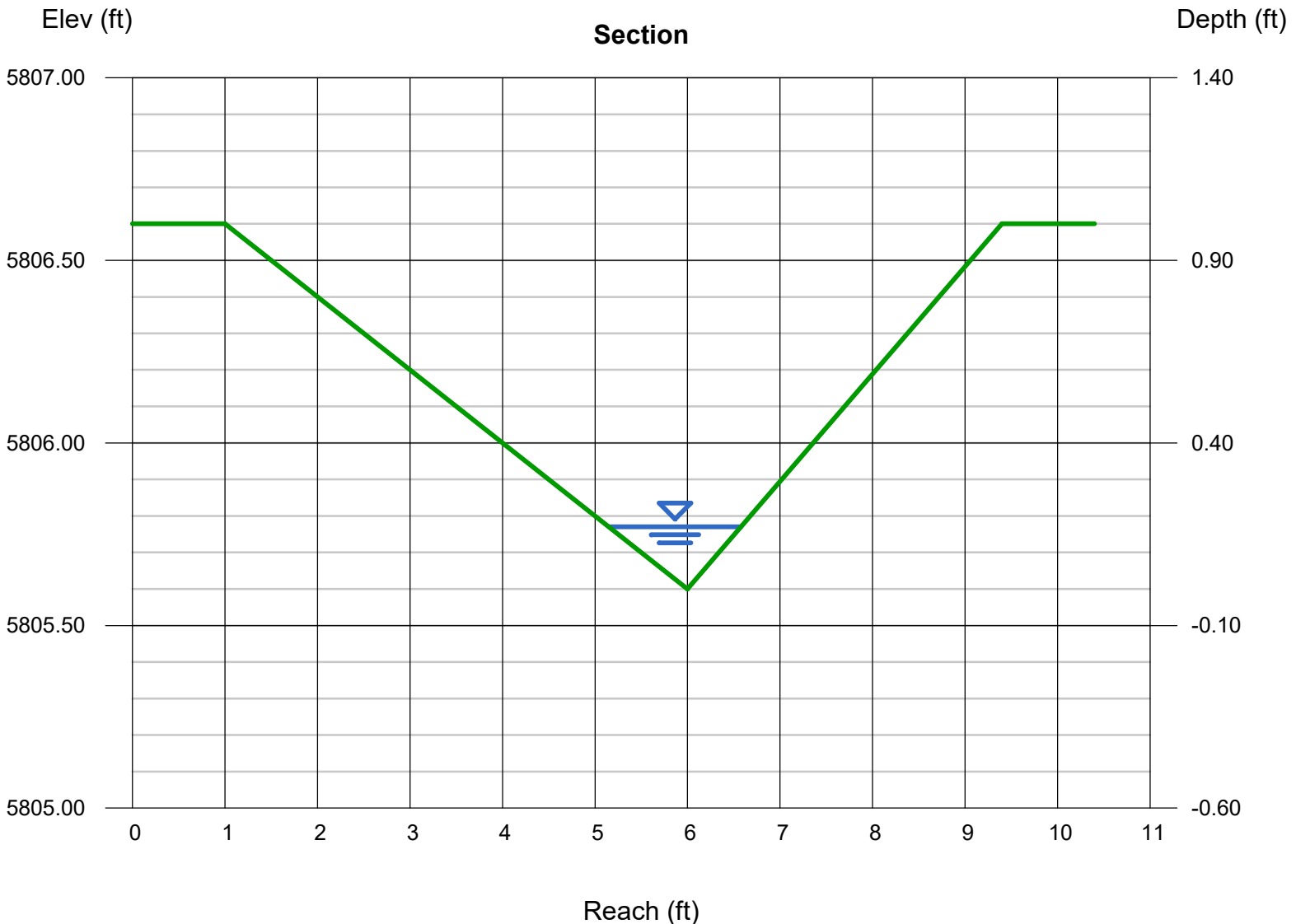
Invert Elev (ft) = 5805.60  
Slope (%) = 0.50  
N-Value = 0.040

### Calculations

Compute by: Known Q  
Known Q (cfs) = 0.06

### Highlighted

Depth (ft) = 0.17  
Q (cfs) = 0.060  
Area (sqft) = 0.12  
Velocity (ft/s) = 0.49  
Wetted Perim (ft) = 1.47  
Crit Depth, Yc (ft) = 0.11  
Top Width (ft) = 1.43  
EGL (ft) = 0.17



# Channel Report

## Sub-Basin D - Landscape Swale - 100yr

### Triangular

Side Slopes (z:1) = 5.00, 3.40  
Total Depth (ft) = 1.00

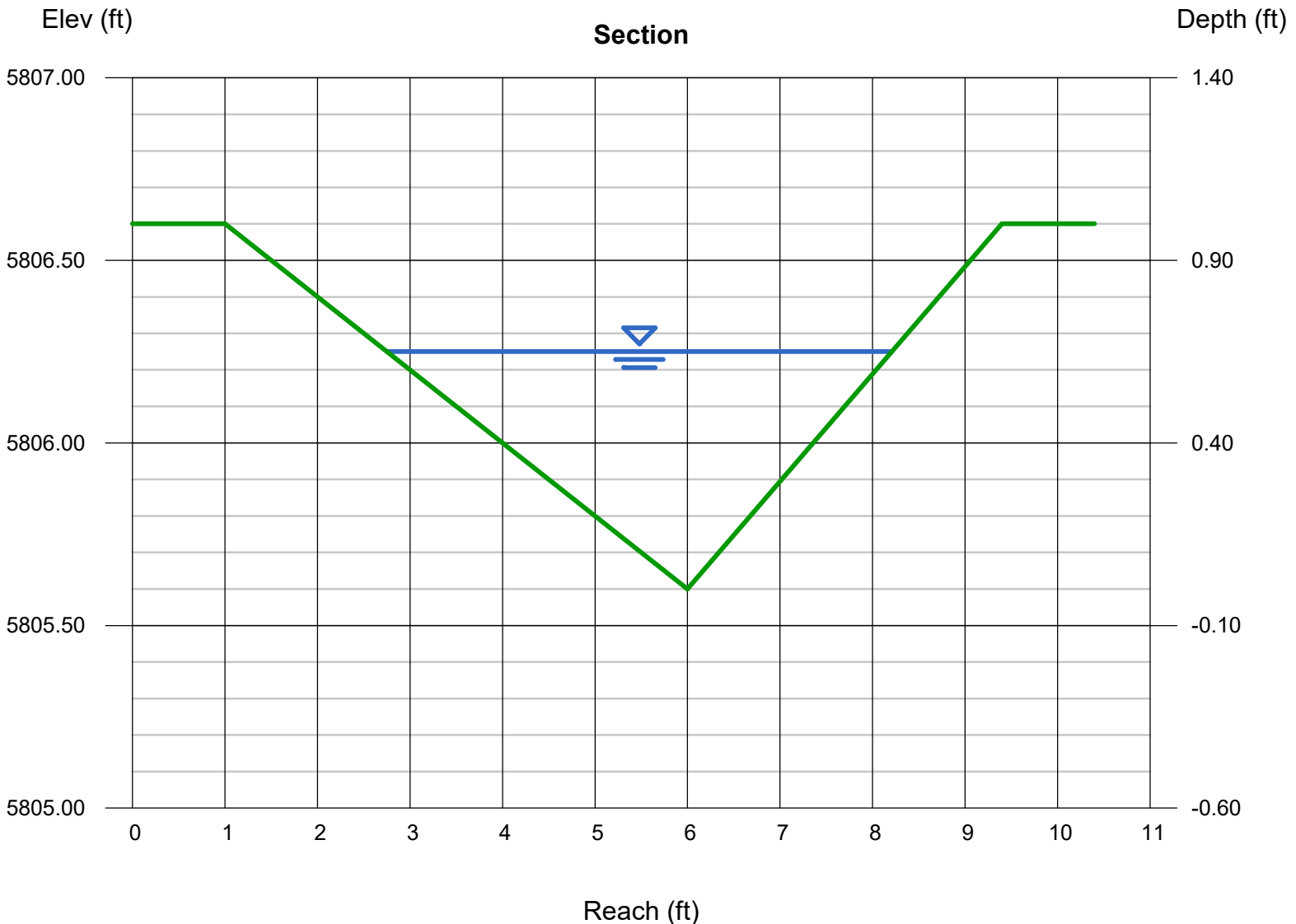
Invert Elev (ft) = 5805.60  
Slope (%) = 0.50  
N-Value = 0.040

### Calculations

Compute by: Known Q  
Known Q (cfs) = 2.16

### Highlighted

Depth (ft) = 0.65  
Q (cfs) = 2.160  
Area (sqft) = 1.77  
Velocity (ft/s) = 1.22  
Wetted Perim (ft) = 5.62  
Crit Depth, Yc (ft) = 0.44  
Top Width (ft) = 5.46  
EGL (ft) = 0.67



**GENERAL NOTES**

**Preliminary Drawings:**

Preliminary drawings may be provided with a quote to indicate the location of vacuum equipment, piping, and hoses. Drawings may be used in direct coordination with Architects' and Engineers' plans for city/AHJ/client approval. Accurate and complete site plans must be provided to ensure the quality of your vacuum area to coordinate issues such as vacuum parking space width/angle, traffic flow, and hose reach.

Drawings are preliminary until the final system order is signed by the client.

Changes made to a vacuum system without Vacutech's consultation voids all Vacutech responsibility as well as the system warranty.

**INSTALLATION NOTES**

**Installation By Others:**

Installation drawings are provided with each project. Most projects require 2 or more installers and a forklift. Buried pipe, footings and concrete equipment pad(s) should be completed before installing Vacutech systems. J-bolt template kits for footings for vacuum arches and stanchions are available for purchase from Vacutech. Refer to drawings for footing requirements. Changes to vacuum piping, vacuum equipment location, and vacuum equipment enclosure will effect the performance of your system. Changes made to a vacuum system without Vacutech's consultation voids all Vacutech responsibility and the system warranty.

**Vacutech System Install:**

Vacutech offers installation as an option when bidding a project.

Please note that the scope of Vacutech's installation only includes work above ground. Vacutech will install vacuum arches/stanchions to concrete footings, install vacuum piping and set vacuum equipment in place.

Vacutech does not dig trenches, auger footings, dig/backfill/bury pipe or conduit, or provide any work below grade.

Vacutech does not pour footings, install J-bolts, install concrete trenches with covers, pour concrete pads, pour grout or do concrete work of any kind. Vacutech does not do core drilling through walls or patch any type of wall coring.

Vacutech does not do any type of roof penetration sealing. I.e. rubber boots, flat room mating, or any other type of material.

Vacutech does not wire lights, turbines, disconnects, VFDs, starters or any other electrical component. Vacutech does not pull wire through conduits. These items must be done by a Licensed Electrician.

**WARRANTY NOTES**

**CHANGES MADE TO VACUUM SYSTEM WITHOUT VACUTECH CONSULTATION VOIDS ALL VACUTECH RESPONSIBILITY AND SYSTEM WARRANTY**

**Equipment warranty information:** (if applicable)

When vacuum equipment is installed in an enclosure with 4 walls and a roof it must be ventilated. Enclosure door must be louvered and an exhaust fan with thermostat set at 85°F must be installed to turn over air every 15 min. Vacuum turbine must be exhausted outside with metallic pipe no smaller than 6" with exhaust pipe opening protected from elements. Equipment pad must be flat and level.

**Variable frequency drive (VFD) warranty information:** (if applicable)

VFDs must be wired from main distribution panel in separate conduit (sized per code; based on turbine H.P. and voltage) to each VFD and from each VFD to turbine motor.

A separate conduit, sized per code, must also be installed from VFD to vacuum pressure transducer installed on filter separator. If two (2) or more VFD's are installed in one (1) enclosure, a separate conduit must be installed for each VFD. Install separate conduit from enclosure to each turbine motor, and each filter separator if there is more than one (1).

**PIPE NOTES**

**Piping systems above ground**

Piping system shall be schedule 40 (or sch 80) solid core PVC or ABS plastic pipe, with plastic D.W.V. (drain, waste and vent) fittings. Zinc, aluminum, or galvanized tubing, with directional flow zinc fittings of no less than 16 gauge, designed specifically for central vacuum systems are also acceptable.

**Buried piping systems cast iron no-hub**

In-ground piping systems that are subject to ground freeze/thaw conditions or excessive movement shall be cast iron with no-hub fittings and no-hub couplings (w/ stainless steel band).

**Buried piping systems PVC sch 40 (or sch 80)**

In-ground piping systems using PVC pipe shall be sch 40 (or sch 80) solid core, with PVC D.W.V. (drain, waste, and vent) fittings. Plastic pipe installed in-ground have a potential of possible cracking and wear. All plastic pipe systems in-ground must be below freeze line.

**System notes:**

All interior surfaces shall be free of burrs and obstructions for a non-restrictive air flow. ABS and PVC piping shall be cut straight and removed of burrs. Piping shall be attached together using a primer, and a cement (clear PVC cement for PVC/ black abs cement for abs) for a 100% tight seal.

Overhead piping systems shall be supported by means of approved pipe hangers, and shall be installed at a maximum of six feet O.C. when using abs or PVC pipe and ten feet when using zinc or aluminum tubing. All fittings supporting vacuum drop/hose assemblies shall be supported with within one foot on each side of fitting connection.

Piping systems shall be tested to hold 10 psi for a minimum of 24 hours.

When vacuum system is installed in potentially explosive environment, the following may be required as a minimum: Explosion proof motor Class I - Group D & Class II - Group E, F & G. Aluminum piping with zinc fittings. Primary and filtered separators and hose assemblies require special grounding. Verify all conditions.

PVC and ABS plastic pipe are not U.V. rated and will discolor and soften/cause bowing when exposed to direct sunlight. It is recommended that all exposed plastic pipe and fittings be primed and painted to help prevent this. It is recommended to use zinc, or aluminum tubing and zinc fittings be used when exposed to sun.

**Plastic pipe exposed to elements:**

PVC pipe will become brittle at 40° f and can crack/split when moving debris collides with it, it is recommended to use cast iron, zinc, or aluminum tubing for colder conditions.

**ADDITIONAL NOTES**

**VFD Systems:**

Instructions for wiring VFD to Turbine and Filter Separator are available for your electrician. After wiring is complete, call our customer service to complete programming.

**Arch Systems: How Awnings are ordered (Coolaroo/Weblon)**

**Step 1:** Arches are to be completely installed on site.

**Step 2:** After installation, Vacutech will send an awning measurement form to be filled out with instructions on how and where to measure. The awning form must be filled out entirely, signed, dated, and faxed or emailed to Vacutech for production.

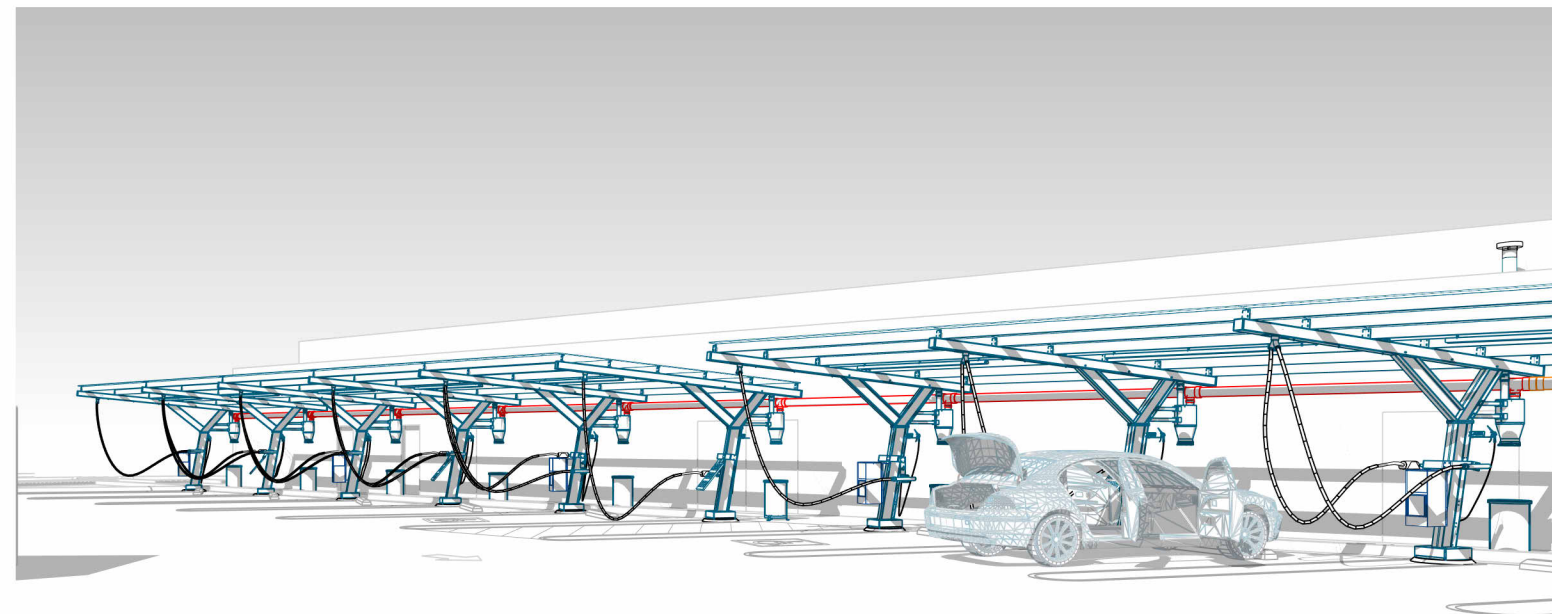
**Step 3:** Awnings are shipped to site w/ instructions.

**Maintenance:**

System longevity under continuous operation is extended by regular maintenance. Issues commonly result from failure to remove obstructions in the piping system, replace damaged or worn parts, or not regularly changing filter bags. Refer to Vacutech maintenance instructions

**Assign a person to central vacuum maintenance:**

To ensure continued trouble free central vacuum system operation and to avoid downtime during periods of heavy use, assign an employee to follow a strict maintenance schedule. Refer to Vacutech recommended maintenance schedule.



# VACUTECH

Elevation: 5,869' ASL AN **NCS** COMPANY

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# VACUTECH

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## COBBLESTONE C82

9572 TWENTY MILE ROAD  
PARKER, COLORADO 80134

#	Revision	By	Chk	Date
4	ADDED ENGINEERED SPECIFICATIONS	TD	ML	8/21/23
5	REPLACED ALL PALM ARCHES WITH RIVAL ARCHES WITH CORRUGATED ALUMINUM AWNINGS	ML	SL	10/27/23
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**COVER SHEET**

Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V001**

**DESIGN CRITERIA:**

BUILDING CODE: INTERNATIONAL BUILDING CODE, 2021 EDITION (2021 IBC)

ROOF D.L. = 1.2 PSF (CORRUGATED STEEL PANEL); ROOF L.L. = 20 PSF  
GROUND S.L. = 45 PSF; ROOF S.L. = 30.24 PSF;

**WIND:**

BASIC WIND SPEED V = 101 MPH; ALLOWABLE WIND SPEED V<sub>ASD</sub> = 78.23 MPH  
RISK CATEGORY = I; EXPOSURE = C

**SEISMIC:**

IMPORTANCE FACTOR, I<sub>e</sub> = 1.0  
MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS S<sub>s</sub> = 0.02 S<sub>1</sub> = 0.056  
DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS S<sub>DS</sub> = 0.214 S<sub>D1</sub> = 0.090  
SITE CLASS = D; SEISMIC DESIGN CATEGORY = B  
SEISMIC RESISTING SYSTEM = STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE  
SEISMIC BASE SHEAR = (W x C<sub>s</sub>)  
SEISMIC RESPONSE COEFFICIENT (C<sub>s</sub>) = 0.17  
RESPONSE MODIFICATION FACTOR (R) = 1.25  
ANALYSIS METHOD: EQUIVALENT LATERAL-FORCE PROCEDURE

**FOUNDATION:**

DESIGN SOIL PRESSURES PER IBC TABLE 1806.2; SOIL CLASS 5  
DESIGN VERTICAL BEARING PRESSURE = 1500 PSF  
DESIGN LATERAL BEARING PRESSURE = 100 PSF/FT (X2 INCREASE PER IBC 1806.3.4)

**SPECIAL STRUCTURAL INSPECTION:**

CONTACT THIRD PARTY SPECIAL INSPECTION AGENCY

PROVIDE SAFE ACCESS TO THE WORK FACILITIES BY THE SPECIAL STRUCTURAL INSPECTOR. NOTIFY ENGINEER OF CONSTRUCTION START DATE AND COORDINATE INSPECTIONS. PROVIDE THE ENGINEER 24 HOURS NOTICE OF SPECIAL INSPECTIONS. SPECIAL INSPECTIONS MAY BE CONDUCTED AS NOTED IN PARENTHESES BELOW. SEE IBC CHAPTER 17 FOR MORE SPECIFIC INFORMATION

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION PER IBC CHAPTER 17:

**SPECIAL INSPECTION:**

1. STEEL CONSTRUCTION PER IBC 1705.2 & IBC 1705.12.1
  - a. FABRICATOR DOCUMENTATION
  - b. HIGH STRENGTH BOLTING – PERIODIC
2. CONCRETE CONSTRUCTION: TABLE 1705.3
  - a. INSPECTION OF REINFORCEMENT AND VERIFICATION OF PLACEMENT.
  - b. INSPECTION OF ANCHORS CAST IN CONCRETE.
  - c. VERIFY USE OF REQUIRED DESIGN MIX.
3. PIER FOUNDATIONS: SECTION 1705.8 AND TABLE 1705.8
  - a. OBSERVATION, COMPLIANCE AND RECORDS PER PIER –CONTINUOUS
  - b. PLACEMENT LOCATION, PLUMBNESS, DIAMETER, LENGTH, EMBEDMENT REQUIREMENT - CONTINUOUS

**CONCRETE:**

ACI MANUAL OF CONCRETE PRACTICE, TYPE V CEMENT.  
MINIMUM 28 DAY STRENGTH AS FOLLOWS:

- CONCRETE SHALL BE 3,000 psi AT 28 DAYS. (EXPOSURE CATEGORY F0, S0, W0, AND C0)
- \* UNLESS ANY OF THE FOLLOWING CONDITIONS APPLY PER ACI 318 CONCRETE DURABILITY REQUIREMENTS.
- 1. CONCRETE EXPOSED TO FREEZE/THAW CYCLES
- 1.1. LIMITED EXPOSURE TO WATER CONCRETE STRENGTH = 4,000 PSI., AIR ENTRAINMENT= 6% & W/CM= 0.55 (EXPOSURE CATEGORY F1)
- 1.2. FREQUENT EXPOSURE TO WATER MIN CONCRETE STRENGTH = 4,500 PSI, AIR ENTRAINMENT= 7.5% & W/CM= 0.45 (EXPOSURE CATEGORY F2)
- 2. LIMITED OR FREQUENT EXPOSURE TO WATER
- 2.1. 4000 PSI W/OUT FREEZE/THAW EXPOSURE OR CHLORIDES. (EXPOSURE CATEGORY C1)
- 2.2. W/ CHLORIDES (SUCH AS BRACKISH OR SALTWATER)=5,000 PSI. (EXPOSURE CATEGORY C2)
- 3. IF SULFATES PRESENT REFER TO ACI 318 CHAPTER 19 FOR MIN. CONCRETE REQUIREMENTS (EXPOSURE CATEGORY S1, S2 & S3)
- ALL MIX DESIGNS SHALL BE ALKALI-SILICA REACTION (ASR) RESISTANT.
- WATER REDUCING ADMIXTURES SHALL CONFIRM TO ASTM C494
- FLY ASH: ASTM C-618 CLASS F, NOT TO EXCEED 15% OF THE CEMENTITIOUS MATERIALS BY WEIGHT.
- MECHANICALLY VIBRATE WHEN PLACED, EXCEPT SLABS ON GRADE. MAXIMUM SLUMP 5"
- NO ADDITIONAL ADMIXTURES WITHOUT APPROVAL.
- NO ADMIXTURES CONTAINING CHLORIDES

CONCRETE SHALL BE DEPOSITED AS CLOSE AS POSSIBLE TO ITS FINAL POSITION. CONCRETE WITHOUT TYPE F OR G WATER REDUCERS SHALL NOT BE ALLOWED TO DROP MORE THAN 5 FEET FROM A CHUTE OR "ELEPHANT TRUNK". CONCRETE WITH TYPE F OR G WATER REDUCERS SHALL NOT BE ALLOWED TO DROP MORE THAN 12 FEET FROM THE CHUTE OR "ELEPHANT TRUNK". IF CONCRETE MUST BE DROPPED MORE THAN ALLOWED ABOVE, HOPPERS, TREMIE AND CHUTES, "ELEPHANT TRUNKS" ETC. SHALL BE USED TO PREVENT SEGREGATION.

CONCRETE PLACED INTO CAISSONS SHALL EMPLOY THE USE OF A TREMIE. CONCRETE SHALL NOT BE PLACED INTO CAISSONS WITH MORE THAN 2 FEET OF STANDING WATER AT THE BOTTOM OF THE CAISSON.

**REINFORCING:**

ASTM A615, GRADE 60 DEFORMED BARS. DETAIL PER LATEST A.C.I. CODE AND DETAILING MANUAL. PLACE REBAR PER C.R.S.I. STANDARDS.

**\*\* OWNER RESPONSIBILITIES\*\***

**\*\*THE STRUCTURAL ENGINEERING DESIGN IS APPLICABLE FOR THE CONFIGURATION PRESENTED IN THESE DRAWINGS AND ONLY FOR THIS LOCATION. THE OWNER SHALL BEAR ALL RISK ASSOCIATED WITH ALTERNATE CONFIGURATIONS, LOADING AND/OR LOCATION.**

THE STRUCTURAL PORTIONS OF THESE PLANS HAVE BEEN REVIEWED BY STARLING MADISON LOFQUIST, INC. (SML) FOR COMPLIANCE WITH THE STRUCTURAL CALCULATIONS. SML IS NOT RESPONSIBLE FOR INFORMATION RELATED TO ANY OTHER DISCIPLINES.

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**COBBLESTONE C82**  
**9572 TWENTY MILE ROAD**  
**PARKER, COLORADO 80134**

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GENERAL STRUCTURAL NOTES	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD
<b>V002</b>	

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**CONSTRUCTION NOTES**

**GENERAL NOTES:**

- ALL DIMENSIONS TO BE FIELD VERIFIED BY OWNER
- IF VACUUM EQUIPMENT IS ENCLOSED WITH ROOF/CEILING, REFER TO VENTILATION REQUIREMENTS UNDER EQUIPMENT WARRANTY INFORMATION
- PIER DESIGN AND REINFORCEMENT FOR CONCEPTUAL USE ONLY. CONSULT STRUCTURAL ENGINEER IN YOUR AREA FOR SPECIFIC DESIGN CRITERIA.
- COMPLY WITH ALL STATE/ COUNTY BUILDING CODES IN YOUR AREA

**EQUIPMENT & MATERIAL:**

- RUN COMPRESSED AIR TO AIR COMPRESSOR LOCATION (BY OTHERS)
- WALL PENETRATION: CORE DRILLING MAY BE REQUIRED FIELD VERIFY HEIGHT
- 23' 6" Lx10' Wx4" H MINIMUM FLAT AND LEVEL CONCRETE FLOOR SPACE REQUIRED FOR VACUUM EQUIPMENT VERIFY SEPARATOR WILL FIT THROUGH DOOR (60" CLEAR OPENING WIDTH RECOMMENDED)

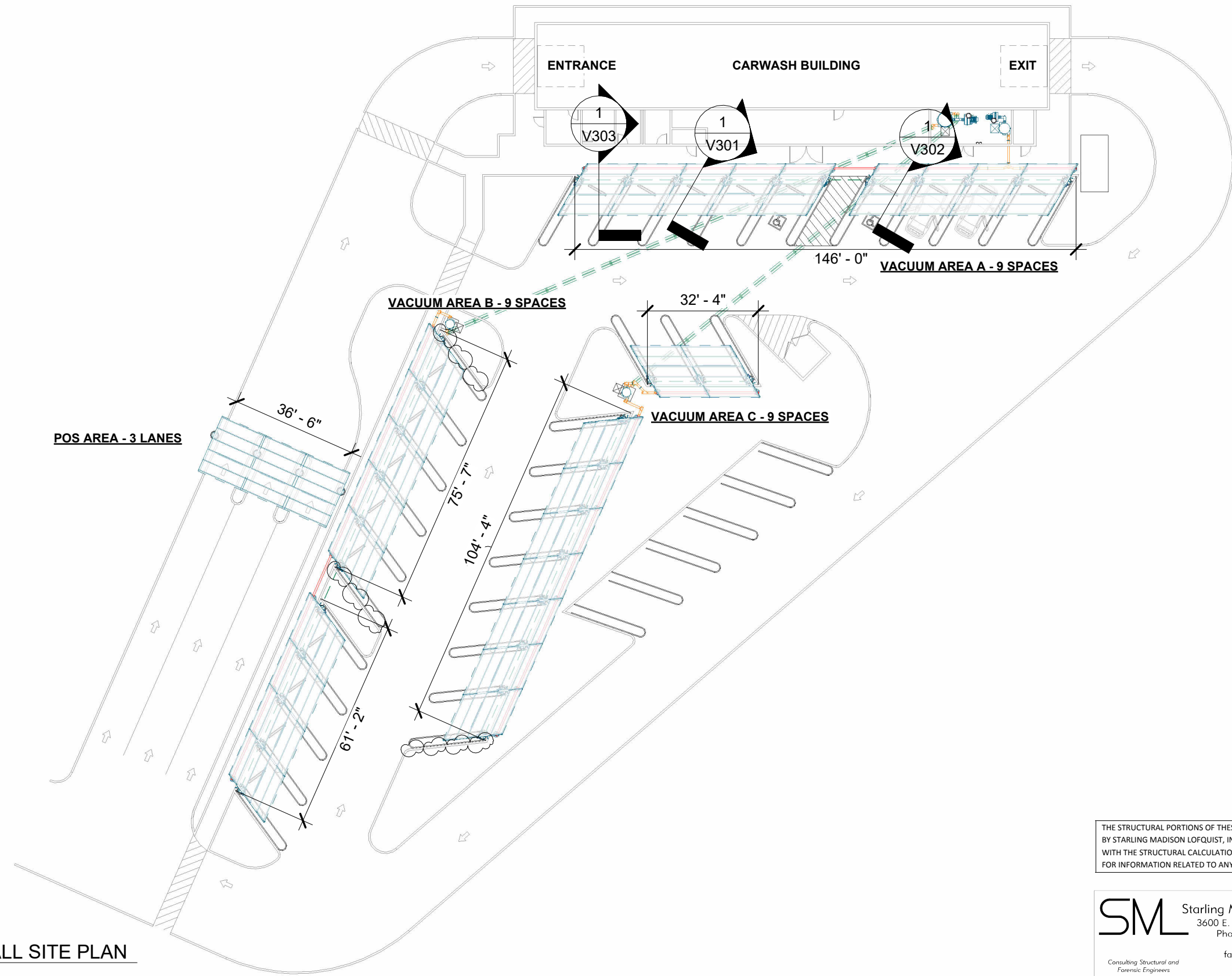
**VACUUM & PLUMBING:**

- SUPPORT SCHEDULE 40 PVC OVERHEAD DRY/WET VACUUM PIPE EVERY 6' MAXIMUM; USE UNISTRUT & CLAMP OR OTHER SUPPORT (PROVIDED BY OTHERS)
- ALL FITTINGS TO BE 'DWV'

**POS AREA**

QTY	ITEM
4	POS RIVAL ARCH
18	PURLINS
3	8' LED LIGHT
3	CORRUGATED STEEL AWNING

**NOTE:** CURBS ADJUSTED 1'-6" FROM CENTER OF FOOTING TO FACE OF CURB TO ALLOW FOR ADEQUATE ARCH SPACING



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1-12-2024

*Andrew J. Huseman*

PROFESSIONAL ENGINEER  
 ANDREW J. HUSEMAN  
 43447  
 COLORADO LICENSED

Exp. 10/31/2025

1 OVERALL SITE PLAN

**VACUTECH**  
 AN **NCS** COMPANY

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 PHONE: (307) 675-1982  
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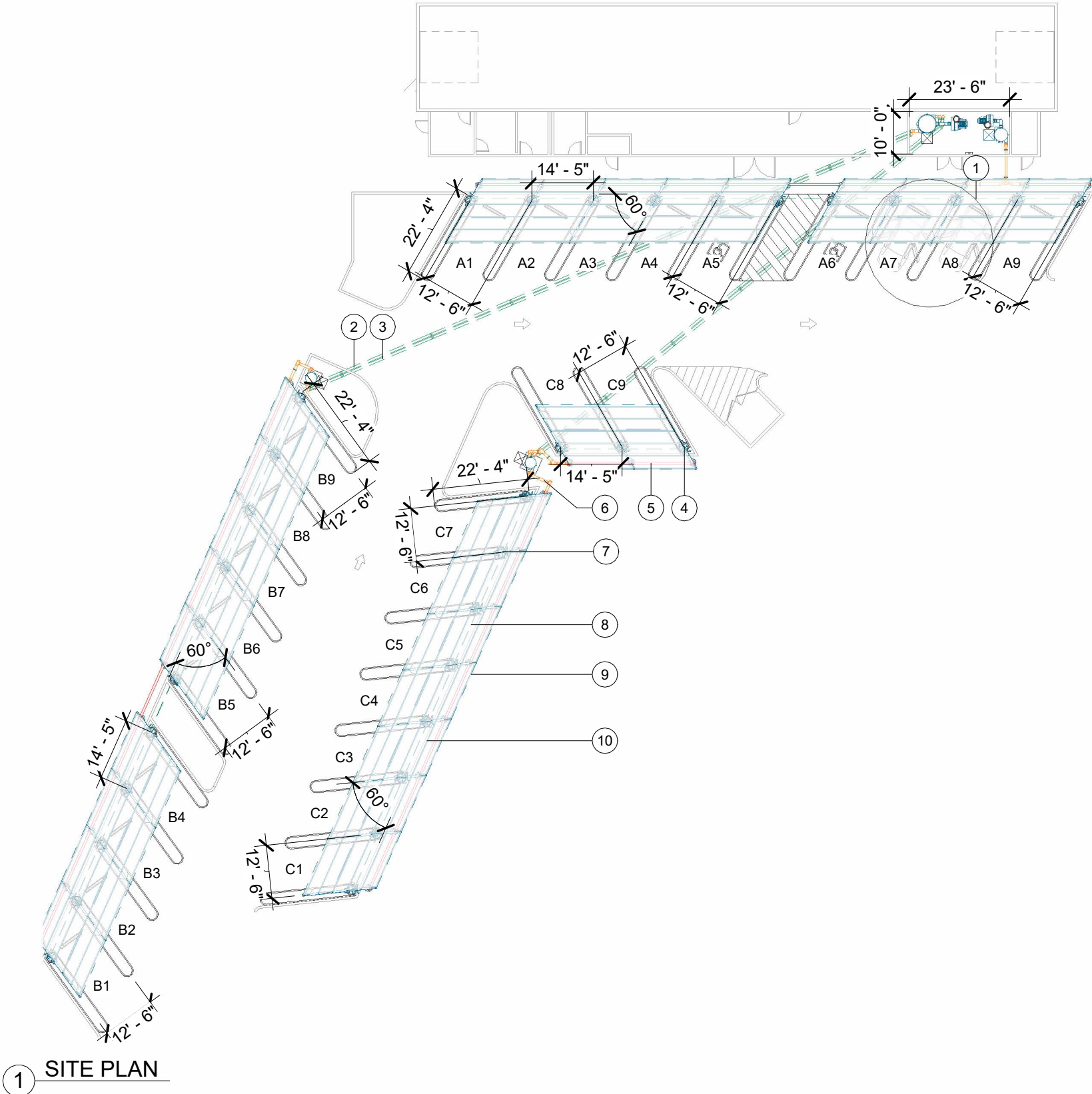
**COBBLESTONE C82**

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OVERALL SITE PLAN		V101
Project Number	117572	
Date	6/5/23	
Drawn By	FM	
Checked By	TD	

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1 SITE PLAN

SITE PLAN	
ITEM	DESCRIPTION
1	15' HOSE REACH
2	6" SCH. 40 SOLID CORE PVC BURIED PRIMARY VACUUM PIPE (BY OTHERS)
3	6" SCH. 40 SOLID CORE PVC BURIED BACK-UP VACUUM PIPE (BY OTHERS)
4	SINGLE USER RIVAL ARCH AT ENDS OF VACUUM SPACES
5	6" OVERHEAD ALUMINUM VACUUM TUBE
6	6" OVERHEAD SCH. 40 SOLID CORE PVC VACUUM PIPE
7	DUAL USER RIVAL ARCH BETWEEN VACUUM SPACES
8	BURIED COMPRESSED AIR LINE (BY OTHERS)
9	CORRUGATED STEEL AWNING BERRIDGE DEEP - DECK PANEL - 22 GA ( 1.5" TALL
10	PURLIN

**VACUUM AREA A**

QTY	ITEM
4	SINGLE USER RIVAL ARCH
7	DUAL USER RIVAL ARCH
9	CREVICE VACUUM TOOL & HOLDER
9	SONNY'S VACUUM TOOL & HOLDER
4	ADA MOUNTING BRACKET
11	U SHAPED TOOL HANGER BRACKET
8	AUTOVAC TOOL ADAPTER BRACKET
18	1-1/2"x15' RAPIDLOCK HOSE
18	AIR NOZZLE & HOSE (BY OTHERS)
11	AIR TOOL HANGER
54	PURLINS
5	13" MAT RACK W/ DOOR PROTECTION
11	30 GALLON (FLOOR MOUNTED) WASTE RECEPTACLE
6	TOWEL BIN
9	CORRUGATED ALUMINUM AWNING
9	8' LED LIGHT
3	96"-140" ADJUSTABLE OVERHEAD PIPE SUPPORT

**VACUUM AREA B**

QTY	ITEM
4	SINGLE USER RIVAL ARCH
7	DUAL USER RIVAL ARCH
9	CREVICE VACUUM TOOL & HOLDER
9	SONNY'S VACUUM TOOL & HOLDER
11	U SHAPED TOOL HANGER BRACKET
7	AUTOVAC TOOL ADAPTER BRACKET
18	1-1/2"x15' RAPIDLOCK HOSE
18	AIR NOZZLE & HOSE (BY OTHERS)
11	AIR TOOL HANGER
54	PURLINS
4	AIR ACCESS DOOR WITH FITTINGS NO HANGER
5	13" MAT RACK W/ DOOR PROTECTION
11	30 GALLON (FLOOR MOUNTED) WASTE RECEPTACLE
6	TOWEL BIN
9	CORRUGATED ALUMINUM AWNING
7	8' LED LIGHT
1	96"-140" ADJUSTABLE OVERHEAD PIPE SUPPORT

**VACUUM AREA C**

QTY	ITEM
4	SINGLE USER RIVAL ARCH
7	DUAL USER RIVAL ARCH
9	CREVICE VACUUM TOOL & HOLDER
9	SONNY'S VACUUM TOOL & HOLDER
11	U SHAPED TOOL HANGER BRACKET
7	AUTOVAC TOOL ADAPTER BRACKET
18	1-1/2"x15' RAPIDLOCK HOSE
18	AIR NOZZLE & HOSE (BY OTHERS)
11	AIR TOOL HANGER
54	PURLINS
4	AIR ACCESS DOOR WITH FITTINGS NO HANGER
5	13" MAT RACK W/ DOOR PROTECTION
11	30 GALLON (FLOOR MOUNTED) WASTE RECEPTACLE
6	TOWEL BIN
9	CORRUGATED ALUMINUM AWNING
9	8' LED LIGHT

**VACUUM EQUIPMENT A**

QTY	ITEM
1	40HP T4 DIRECT DRIVE TURBINE (HIGH ELEVATION)
1	8" T4 INDOOR EXHAUST SILENCER
1	38x88 FILTER SEPARATOR
1	96"-140" ADJUSTABLE OVERHEAD PIPE SUPPORT

**VACUUM EQUIPMENT B & C**

QTY	ITEM
1	75HP T5 DIRECT DRIVE TURBINE (HIGH ELEVATION)
1	8" T5 INDOOR EXHAUST SILENCER
2	31x60 PRIMARY SEPARATOR
1	50x108 FILTER SEPARATOR

**VACUTECH**  
AN **NCS** COMPANY  
1350 HI-TECH DRIVE  
SHERIDAN, WY 82801  
PHONE: (307) 675-1982  
EMAIL: vacinfo@ncswash.com  
WEB: www.vacutechllc.com

**COBBLESTONE C82**  
9572 TWENTY MILE ROAD  
PARKER, COLORADO 80134

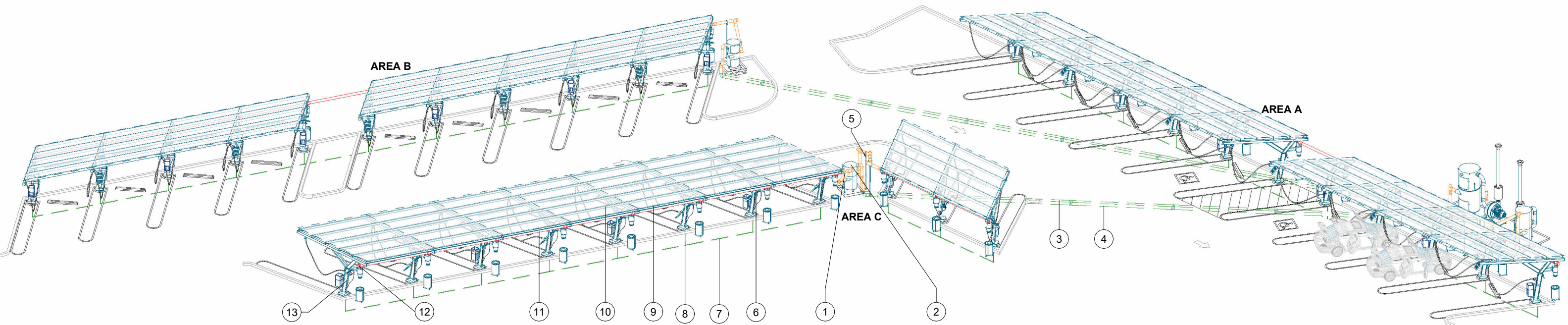
#	Revision	By	Chk	Date
4	ADDED ENGINEERED SPECIFICATIONS	TD	ML	8/21/23
5	REPLACED ALL PALM ARCHES WITH RIVAL ARCHES WITH CORRUGATED ALUMINUM AWNINGS	ML	SL	10/27/23
6	POS ARCHES CHANGED TO RIVAL ARCHES	TJ	ML	11/20/23
7	CHANGED THE CONFIGURATION OF THE POS LAYOUT TO RUN PARALLEL WITH THE LANES	FM	TJ	11/28/23
8	REMOVED 6' LED LIGHTS & INSTALLED 8' LED LIGHTS	FD	TD	12/6/23
9	REVISED FOOTING DETAILS AND GENERAL STRUCTURAL NOTES PER ENGINEERING NOTES	FM	TJ	1/10/24

**VACUUM SITE PLAN**

Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V111**

SITE ISOMETRIC	
ITEM	DESCRIPTION
1	6" OVERHEAD SCH. 40 SOLID CORE PVC VACUUM PIPE
2	31x60 PRIMARY SEPARATOR
3	6" SCH. 40 SOLID CORE PVC BURIED PRIMARY VACUUM PIPE (BY OTHERS)
4	6" SCH. 40 SOLID CORE PVC BURIED BACK-UP VACUUM PIPE (BY OTHERS)
5	OVERHEAD PIPE SUPPORT
6	DUAL USER RIVAL ARCH BETWEEN VACUUM SPACES
7	BURIED COMPRESSED AIR LINE (BY OTHERS)
8	COMPRESSED AIR LINE RAN UP THROUGH FOOTING WITH 1/2" FIPT ADAPTER, 10" ABOVE FOOTING GRADE (BY OTHERS)
9	CORRUGATED STEEL AWNING BERRIDGE DEEP - DECK PANEL - 22 GA ( 1.5" TALL
10	PURLIN
11	6" OVERHEAD ALUMINUM VACUUM TUBE
12	6" CLEAN-OUT (TYP.)
13	SINGLE USER RIVAL ARCH AT ENDS OF VACUUM SPACES



1 SITE ISOMETRIC

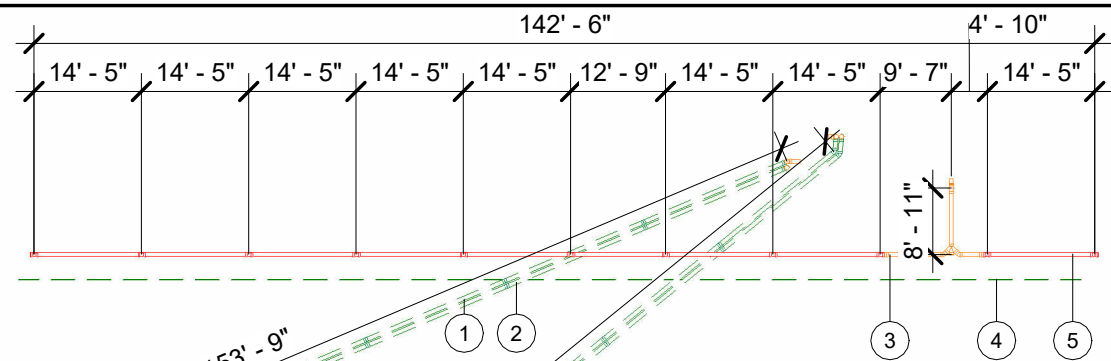
**VACUTECH**  
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 SHERIDAN, WY 82801  
 PHONE: (307) 675-1982  
 EMAIL: vacinfo@ncswash.com  
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**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

#	Revision	By	Chk	Date
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9	REVISED FOOTING DETAILS AND GENERAL STRUCTURAL NOTES PER ENGINEERING NOTES	FM	TJ	1/10/24

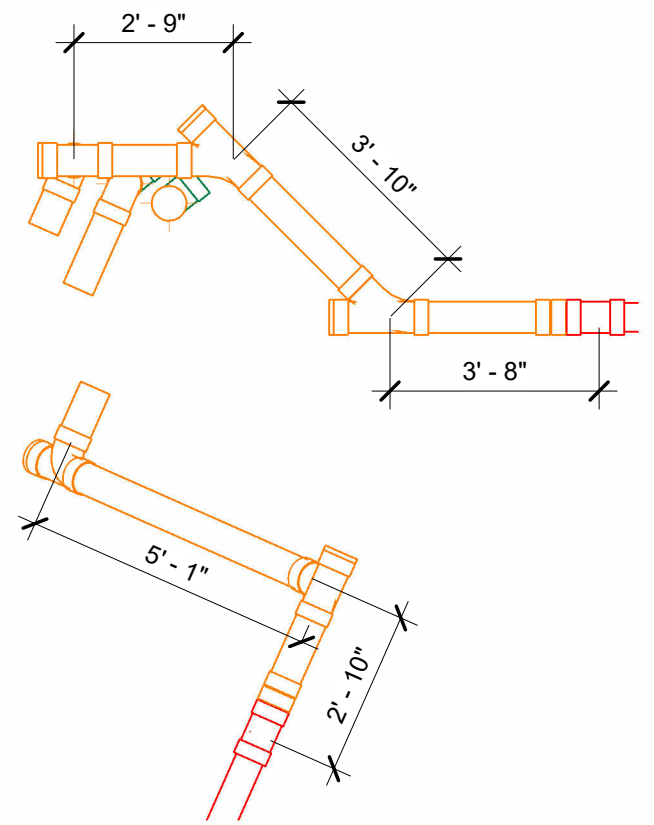
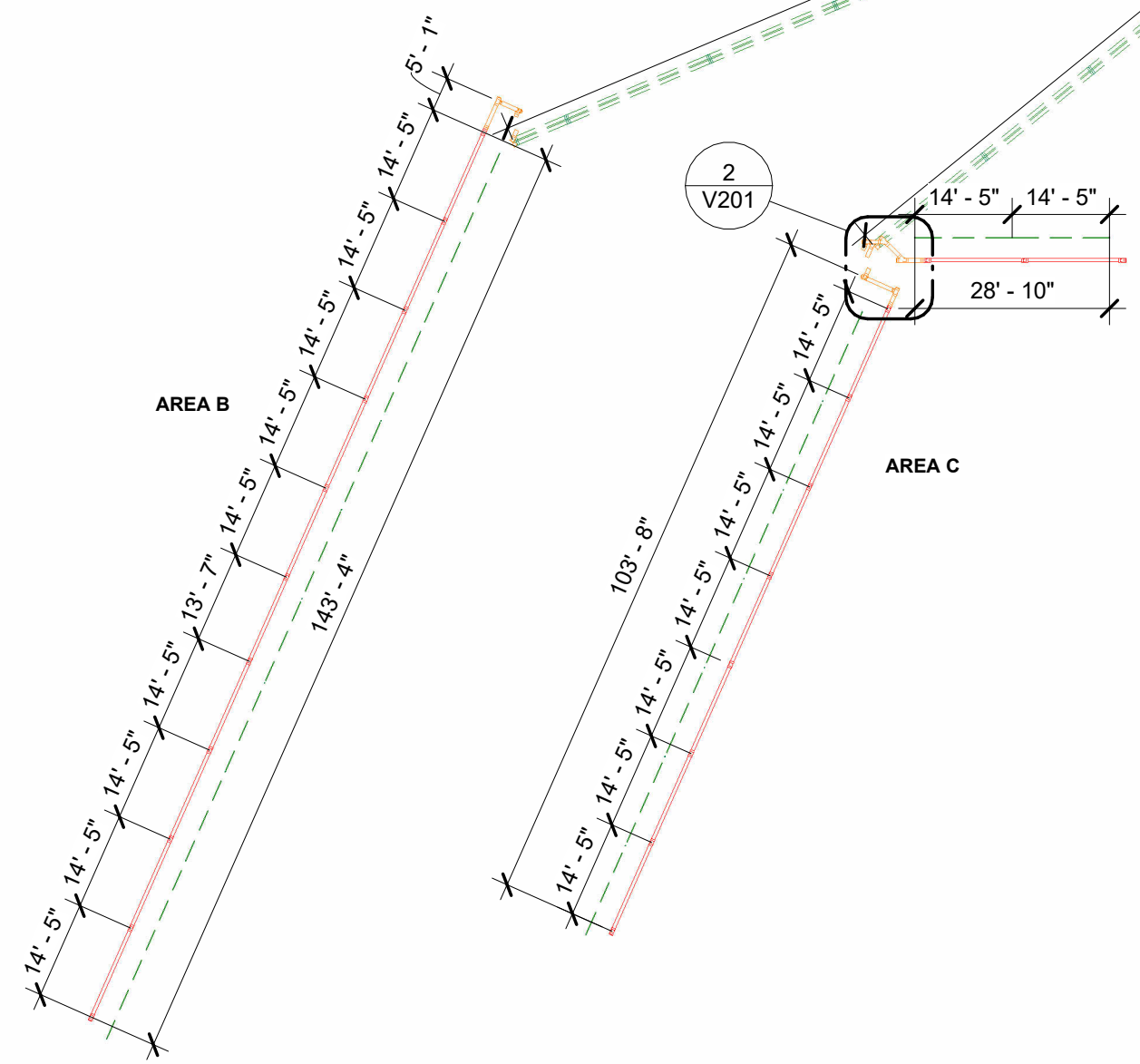
VACUUM SITE ISOMETRIC	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD
<b>V121</b>	

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- PIPE NOTES:**
- FIELD VERIFY ALL DIMENSIONS
  - SUPPORT SCHEDULE 40 PVC OVERHEAD DRY/WET VACUUM PIPE EVERY 6' MAXIMUM; USE UNISTRUT & CLAMP OR OTHER SUPPORT **(PROVIDED BY OTHERS)**
  - RUN COMPRESSED AIR TO AIR COMPRESSOR LOCATION **(BY OTHERS)**
  - COMPRESSED AIR RECOMMENDED WORKING PRESSURE IS 75PSIG AND 10SCFM AT INTERFACE
  - WALL PENETRATION: CORE DRILLING MAY BE REQUIRED FIELD VERIFY HEIGHT
  - REFER TO SHEET V721 FOR PIPE ASSEMBLY CUTSHEETS
  - ALL FITTINGS TO BE 'DWV'

PIPE LAYOUT	
ITEM	DESCRIPTION
1	6" SCH. 40 SOLID CORE PVC BURIED PRIMARY VACUUM PIPE (BY OTHERS)
2	6" SCH. 40 SOLID CORE PVC BURIED BACK-UP VACUUM PIPE (BY OTHERS)
3	6" OVERHEAD SCH. 40 SOLID CORE PVC VACUUM PIPE
4	BURIED COMPRESSED AIR LINE (BY OTHERS)
5	6" OVERHEAD ALUMINUM VACUUM TUBE



1 PIPE LAYOUT

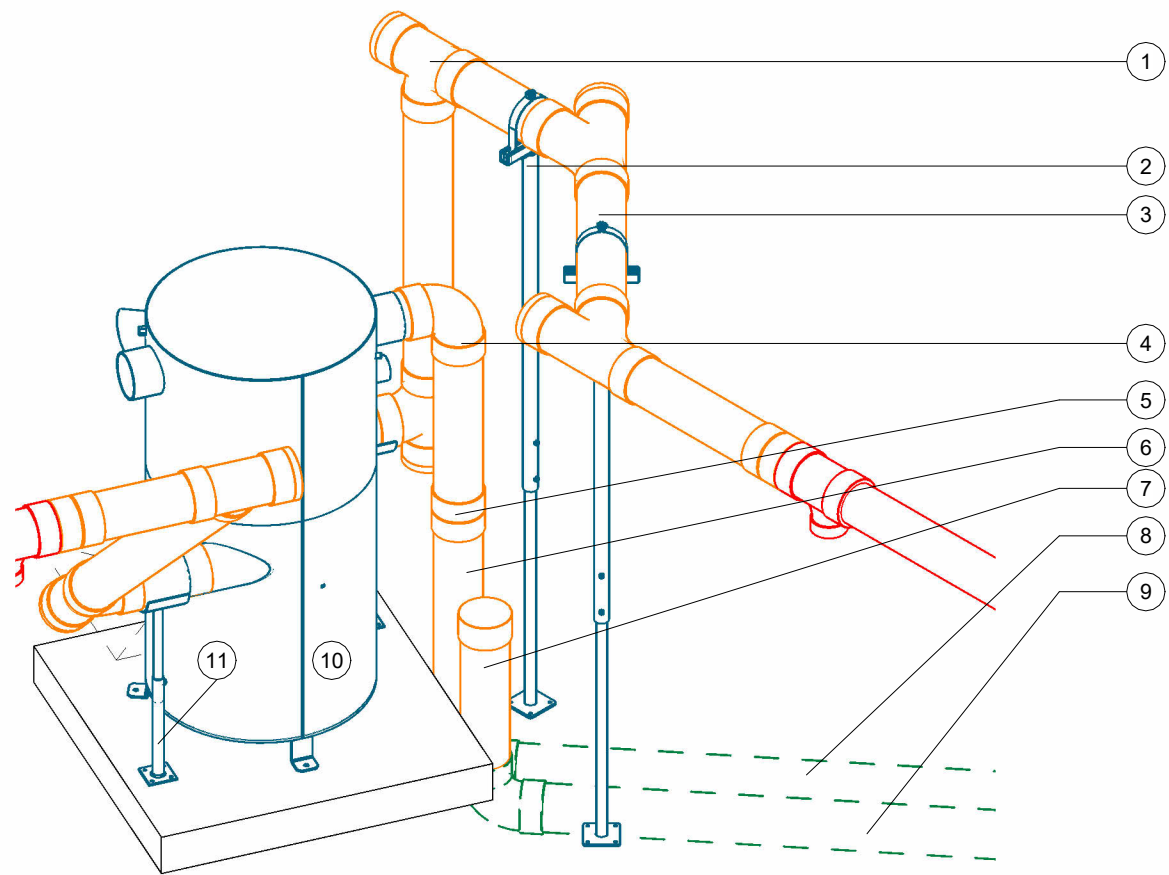
**VACUTECH**  
 AN **NCS** COMPANY  
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**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

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9	REVISED FOOTING DETAILS AND GENERAL STRUCTURAL NOTES PER ENGINEERING NOTES	FM	TJ	1/10/24

PIPE LAYOUT		V201
Project Number	117572	
Date	6/5/23	
Drawn By	FM	
Checked By	TD	

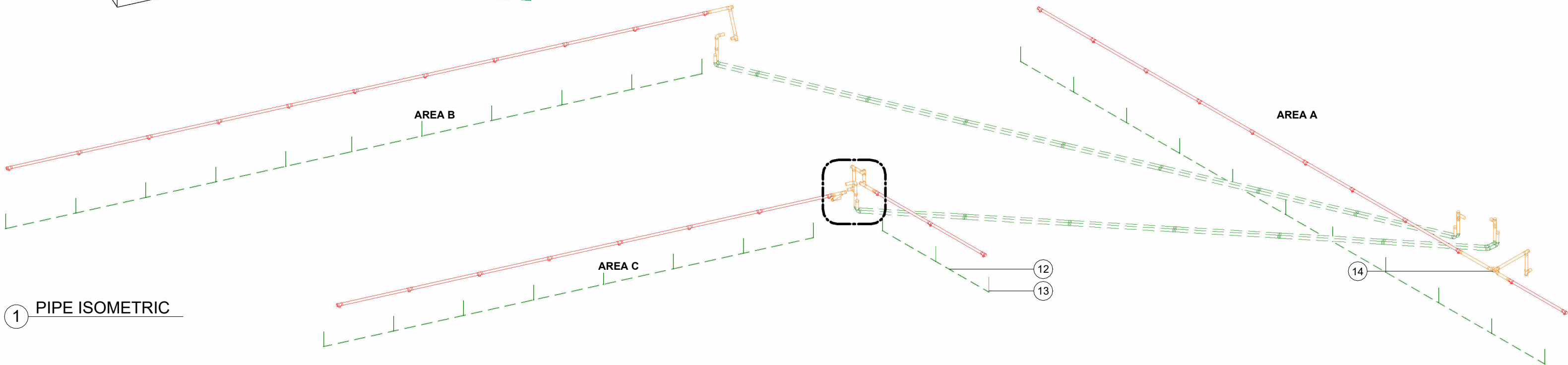
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**PIPE NOTES:**

- a. FIELD VERIFY ALL DIMENSIONS
- b. SUPPORT SCHEDULE 40 PVC OVERHEAD DRY/WET VACUUM PIPE EVERY 6' MAXIMUM; USE UNISTRUT & CLAMP OR OTHER SUPPORT **(PROVIDED BY OTHERS)**
- c. RUN COMPRESSED AIR TO AIR COMPRESSOR LOCATION **(BY OTHERS)**
- d. COMPRESSED AIR RECOMMENDED WORKING PRESSURE IS 75PSIG AND 10SCFM AT INTERFACE
- e. WALL PENETRATION: CORE DRILLING MAY BE REQUIRED FIELD VERIFY HEIGHT
- f. REFER TO SHEET V721 FOR PIPE ASSEMBLY CUTSHEETS
- g. ALL FITTINGS TO BE 'DWV'

PIPE ISOMETRIC	
ITEM	DESCRIPTION
1	6" PVC SANITARY TEE
2	OVERHEAD PIPE SUPPORT
3	6" OVERHEAD SCH. 40 SOLID CORE PVC VACUUM PIPE
4	6" 90 DEGREE PVC ELBOW
5	6" FERNCO
6	6" PRIMARY PIPE STUB-UP LOCATION
7	6" BACK-UP PIPE STUB-UP LOCATION W/PVC SLIP CAP
8	6" SCH. 40 SOLID CORE PVC BURIED PRIMARY VACUUM PIPE (BY OTHERS)
9	6" SCH. 40 SOLID CORE PVC BURIED BACK-UP VACUUM PIPE (BY OTHERS)
10	31x60 PRIMARY SEPARATOR
11	SEPARATOR PIPE SUPPORT
12	BURIED COMPRESSED AIR LINE (BY OTHERS)
13	COMPRESSED AIR LINE RAN UP THROUGH FOOTING WITH 1/2" FIPT ADAPTER, 10" ABOVE FOOTING GRADE (BY OTHERS)
14	6" CLEAN-OUT (TYP.)



1 PIPE ISOMETRIC

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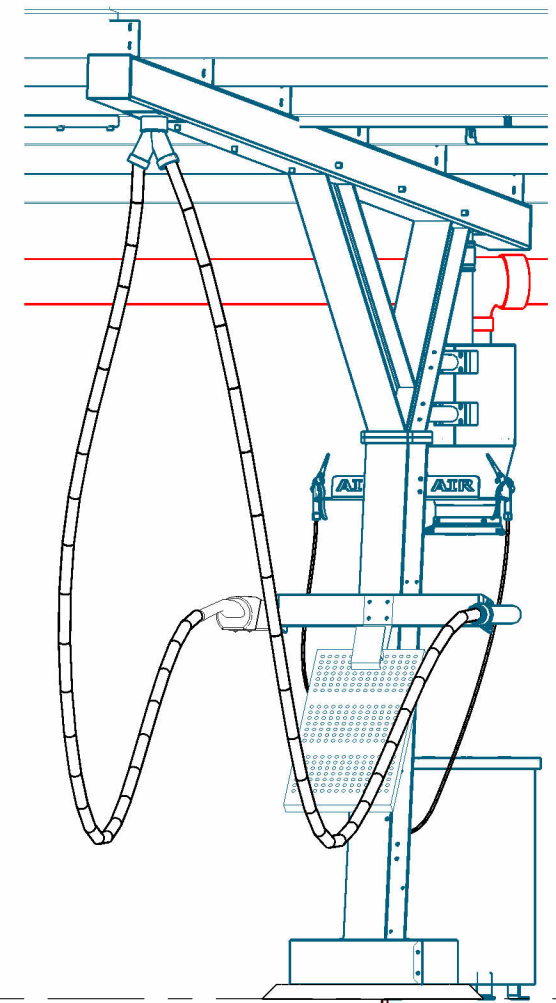
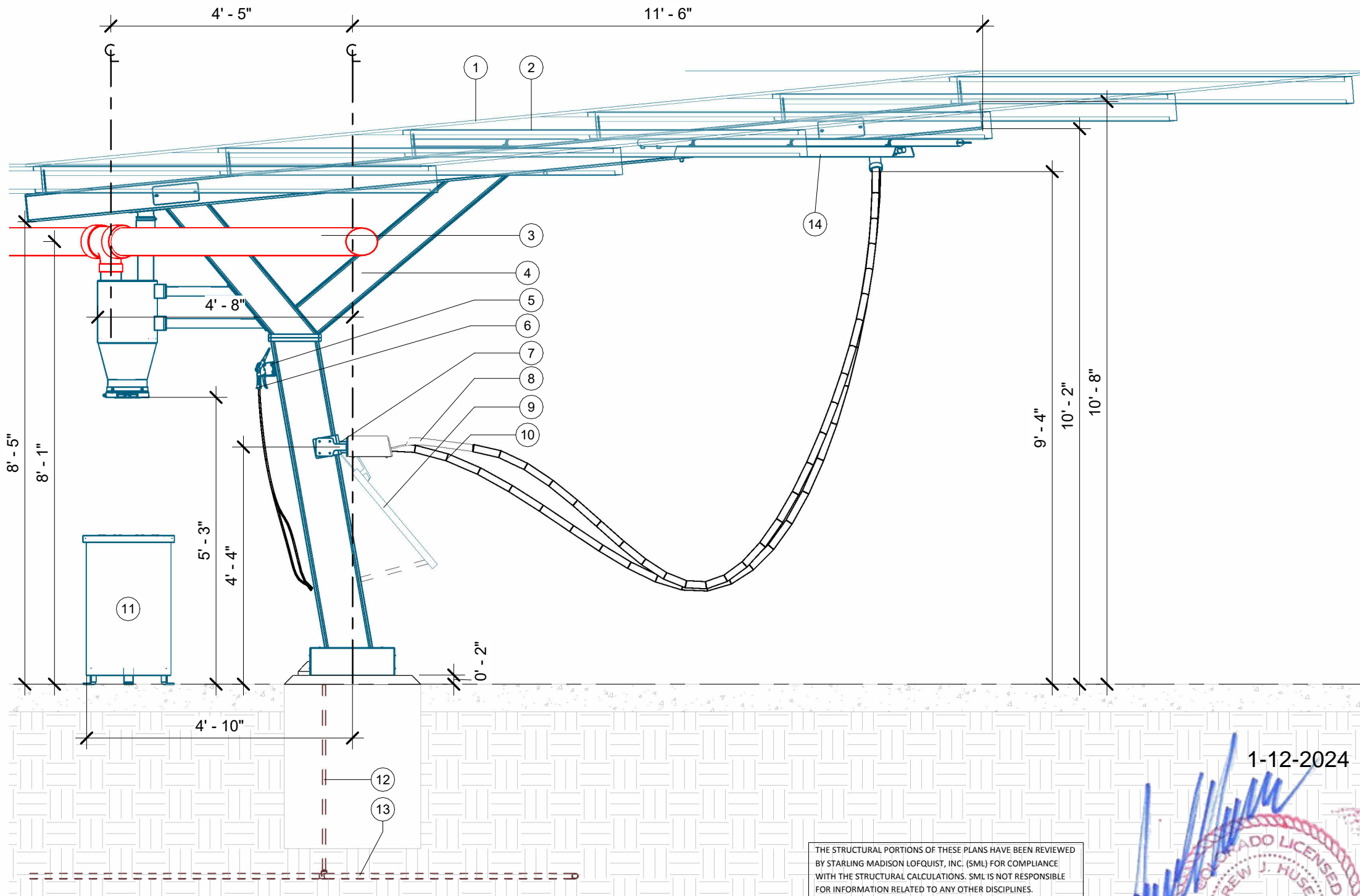
**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

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PIPE ISOMETRIC	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V211**

FIELD VERIFY ALL DIMENSIONS



F.G.  
0' - 0"

1 PARKING ELEVATION

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**SML** Starling Madison Lofquist, Inc.  
3600 E. University Dr. Suite 1400  
Phoenix, Arizona 85034  
(602) 438-2500  
fax. (602) 438-2505  
JOB # 641-23

1-12-2024  
*[Signature]*  
PROFESSIONAL ENGINEER  
ANDREW J. HUSEMANN  
43447  
Exp. 10/31/2025

PARKING ELEVATION	
ITEM	DESCRIPTION
1	CORRUGATED STEEL AWNING BERRIDGE DEEP - DECK PANEL - 22 GA ( 1.5" TALL
2	PURLIN
3	6" OVERHEAD ALUMINUM VACUUM TUBE
4	DUAL USER RIVAL ARCH
5	AIR TOOL HANGER
6	AIR NOZZLE & HOSE
7	CREVICE VACUUM TOOL
8	SONNY'S VACUUM TOOL
9	13" MAT RACK W/ DOOR PROTECTION
10	1-1/2"x15' RAPIDLOCK HOSE
11	30 GALLON WASTE RECEPTACLE
12	COMPRESSED AIR LINE RAN UP THROUGH FOOTING WITH 1/2" FIPT ADAPTER, 10" ABOVE FOOTING GRADE (BY OTHERS)
13	BURIED COMPRESSED AIR LINE (BY OTHERS)
14	8' LED LIGHT

**VACUTECH**  
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WEB: www.vacutecnhc.com

**COBBLESTONE C82**  
9572 TWENTY MILE ROAD  
PARKER, COLORADO 80134

#	Revision	By	Chk	Date
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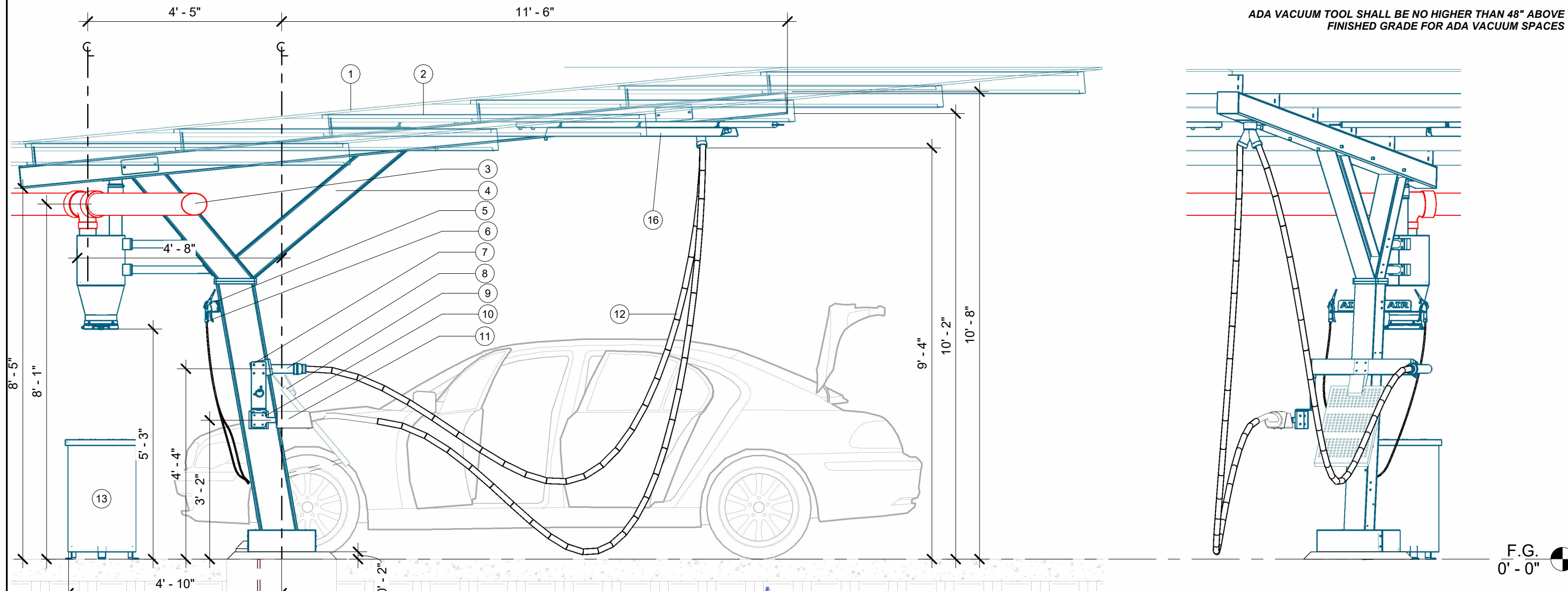
PARKING ELEVATION	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

V301

1/10/2024 1:45:19 PM

FIELD VERIFY ALL DIMENSIONS

ADA VACUUM TOOL SHALL BE NO HIGHER THAN 48" ABOVE FINISHED GRADE FOR ADA VACUUM SPACES



F.G.  
0' - 0"

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3600 E. University Dr. Suite 1400  
Phoenix, Arizona 85034  
(602) 438-2500  
fax. (602) 438-2505  
JOB # 641-23  
Consulting Structural and Forensic Engineers

1-12-2024  
*[Signature]*  
**PROFESSIONAL ENGINEER**  
ANDREW J. HUSEMAN  
43447  
Exp. 10/31/2025

ADA PARKING ELEVATION	
ITEM	DESCRIPTION
1	CORRUGATED STEEL AWNING BERRIDGE DEEP - DECK PANEL - 22 GA ( 1.5" TALL
2	PURLIN
3	6" OVERHEAD ALUMINUM VACUUM TUBE
4	DUAL USER RIVAL ARCH
5	AIR TOOL HANGER
6	AIR NOZZLE & HOSE
7	ADA TOOL MOUNT BRACKET
8	CREVICE VACUUM TOOL

ADA PARKING ELEVATION	
ITEM	DESCRIPTION
9	13" MAT RACK W/ DOOR PROTECTION
10	AUTOVAC TOOL ADAPTER BRACKET
11	SONNY'S VACUUM TOOL
12	1-1/2"x15' RAPIDLOCK HOSE
13	30 GALLON WASTE RECEPTACLE
14	COMPRESSED AIR LINE RAN UP THROUGH FOOTING WITH 1/2" FIPT ADAPTER, 10" ABOVE FOOTING GRADE (BY OTHERS)
15	BURIED COMPRESSED AIR LINE (BY OTHERS)
16	8' LED LIGHT

1 ADA PARKING ELEVATION

**VACUTECH**  
AN **NCS** COMPANY  
1350 HI-TECH DRIVE  
SHERIDAN, WY 82801  
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WEB: www.vacutecnhllc.com

**COBBLESTONE C82**  
9572 TWENTY MILE ROAD  
PARKER, COLORADO 80134

#	Revision	By	Chk	Date
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ADA PARKING ELEVATION	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V302**

1/10/2024 1:45:26 PM

FIELD VERIFY ALL DIMENSIONS

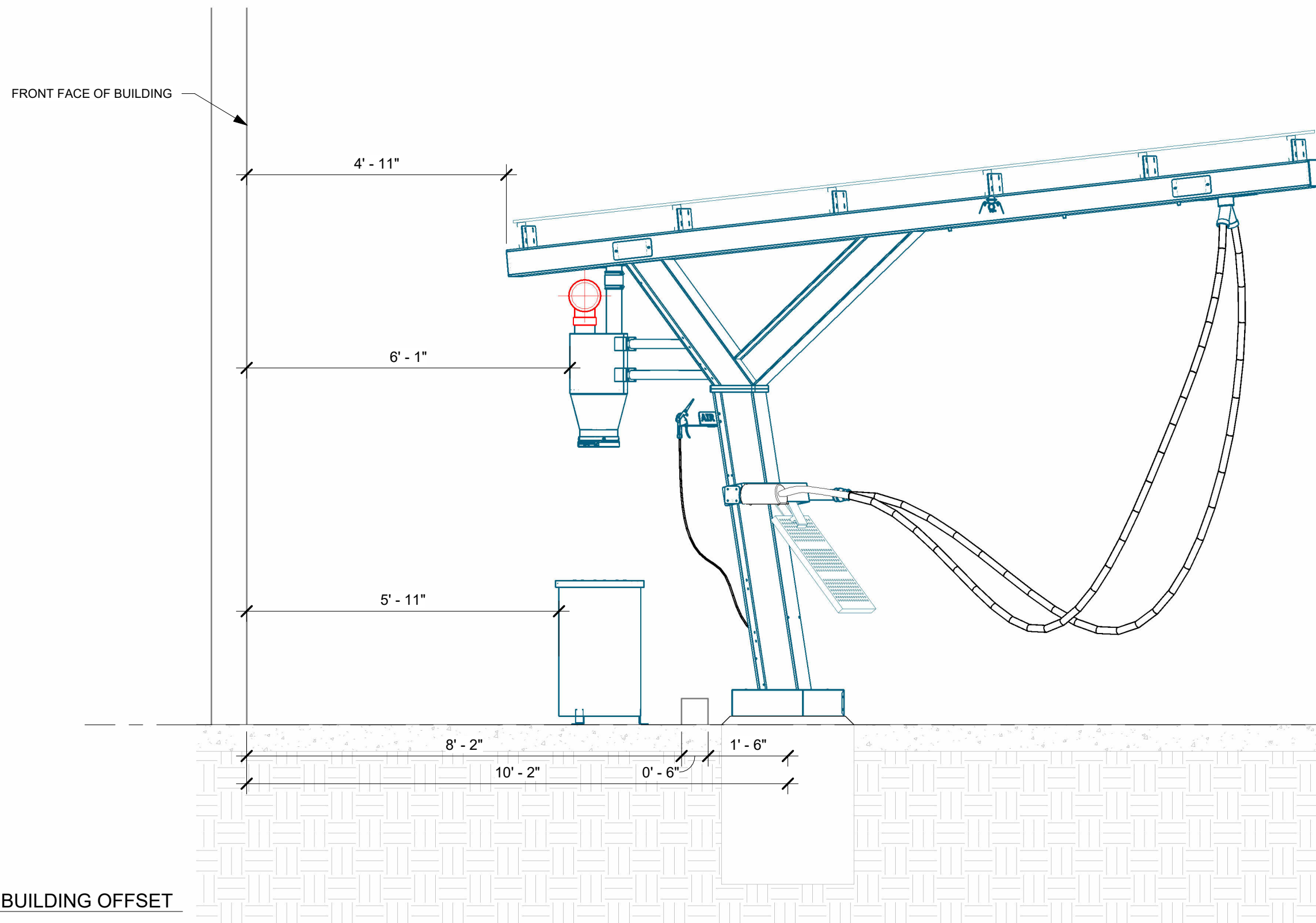
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Exp. 10/31/2025

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 Phoenix, Arizona 85034  
 (602) 438-2500  
 fax: (602) 438-2505  
 Consulting Structural and Forensic Engineers  
 JOB # 641-23



① AREA A BUILDING OFFSET

F.G. 0'-0"

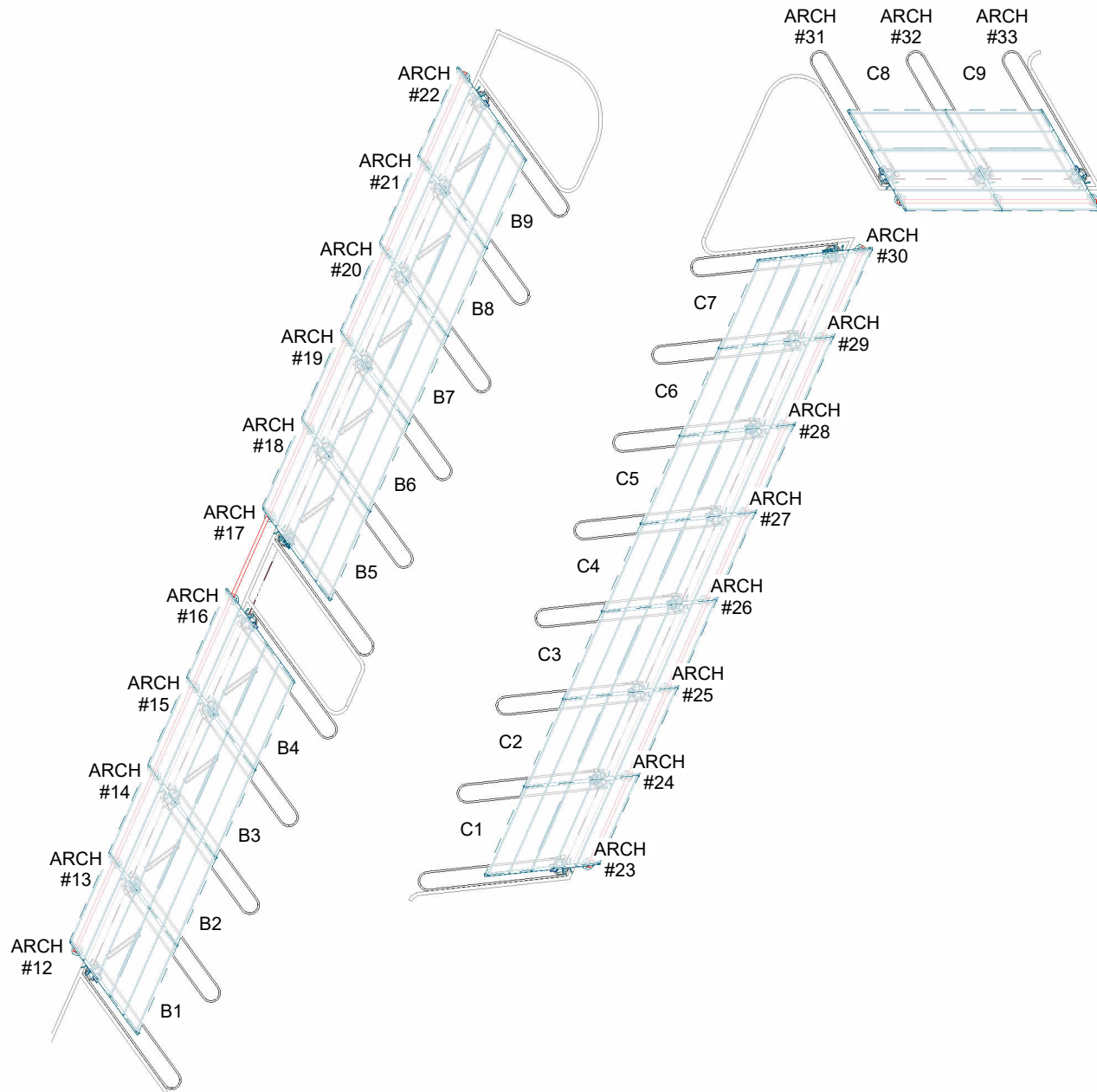
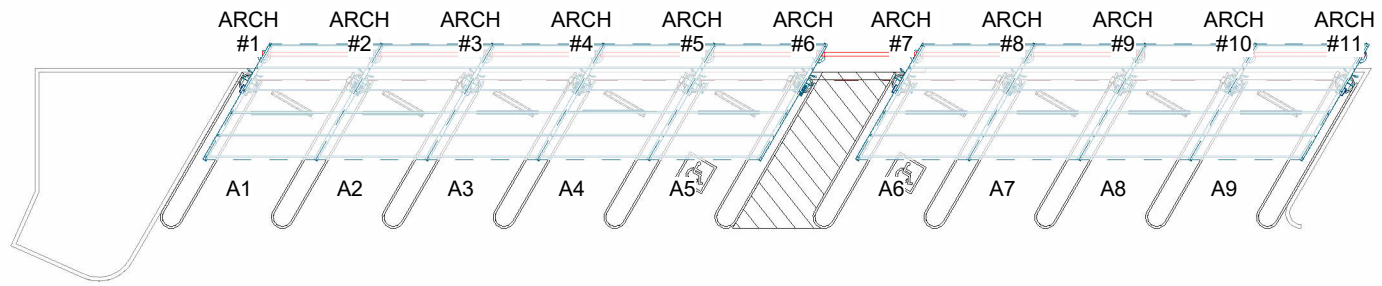
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 PARKER, COLORADO 80134

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BUILDING OFFSET		V303
Project Number	117572	
Date	6/5/23	
Drawn By	FM	
Checked By	TD	

1/10/2024 1:45:29 PM



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 Consulting Structural and Forensic Engineers  
 JOB # 641-23

1-12-2024  
  
 Exp. 10/31/2025

1 ARCH NUMBERING PLAN

**VACUTECH**  
 AN **NCS** COMPANY  
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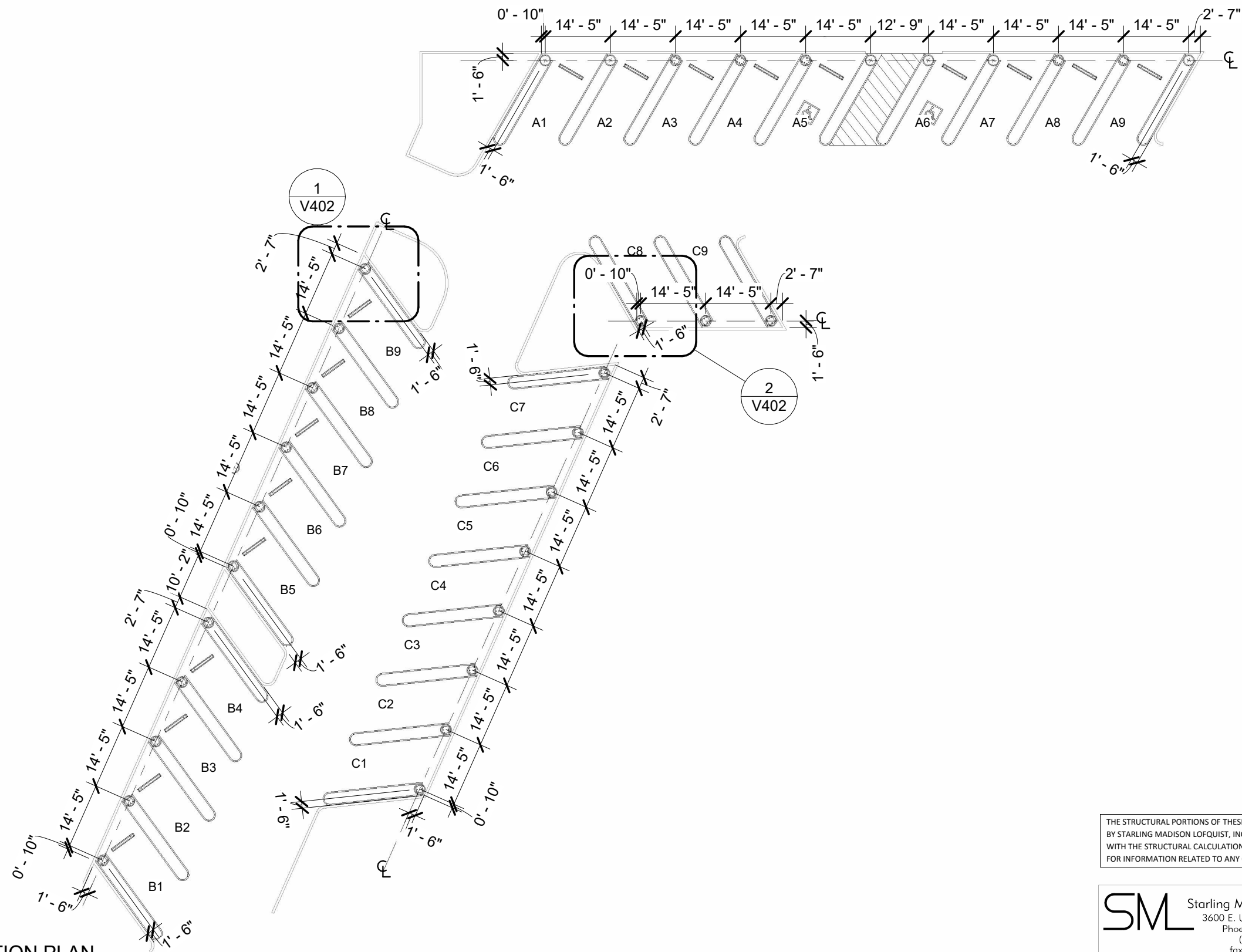
**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

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ARCH NUMBERING PLAN	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

V311

1/10/2024 1:45:32 PM



1 FOOTING LOCATION PLAN

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1-12-2024  
  
 Exp. 10/31/2025

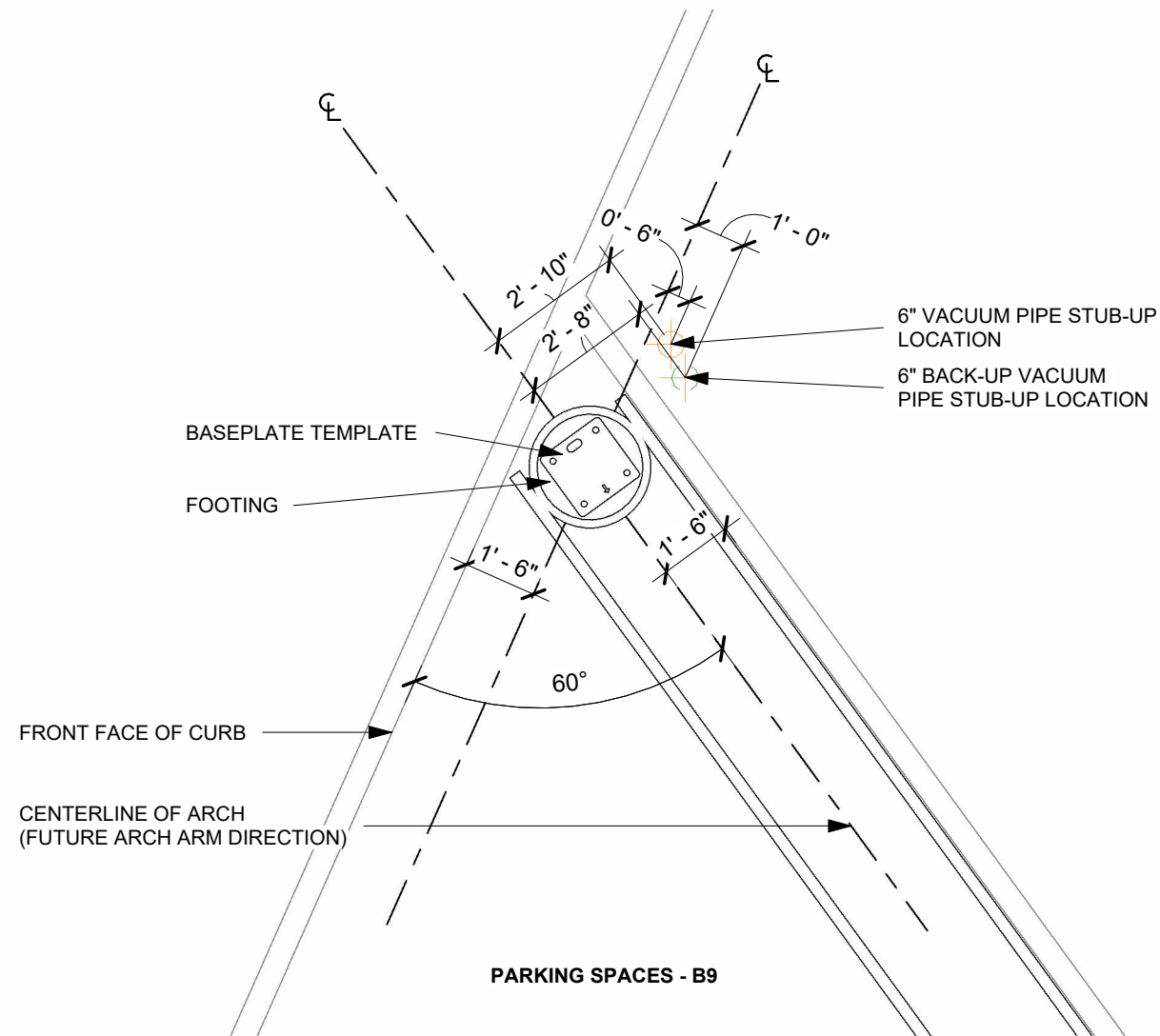
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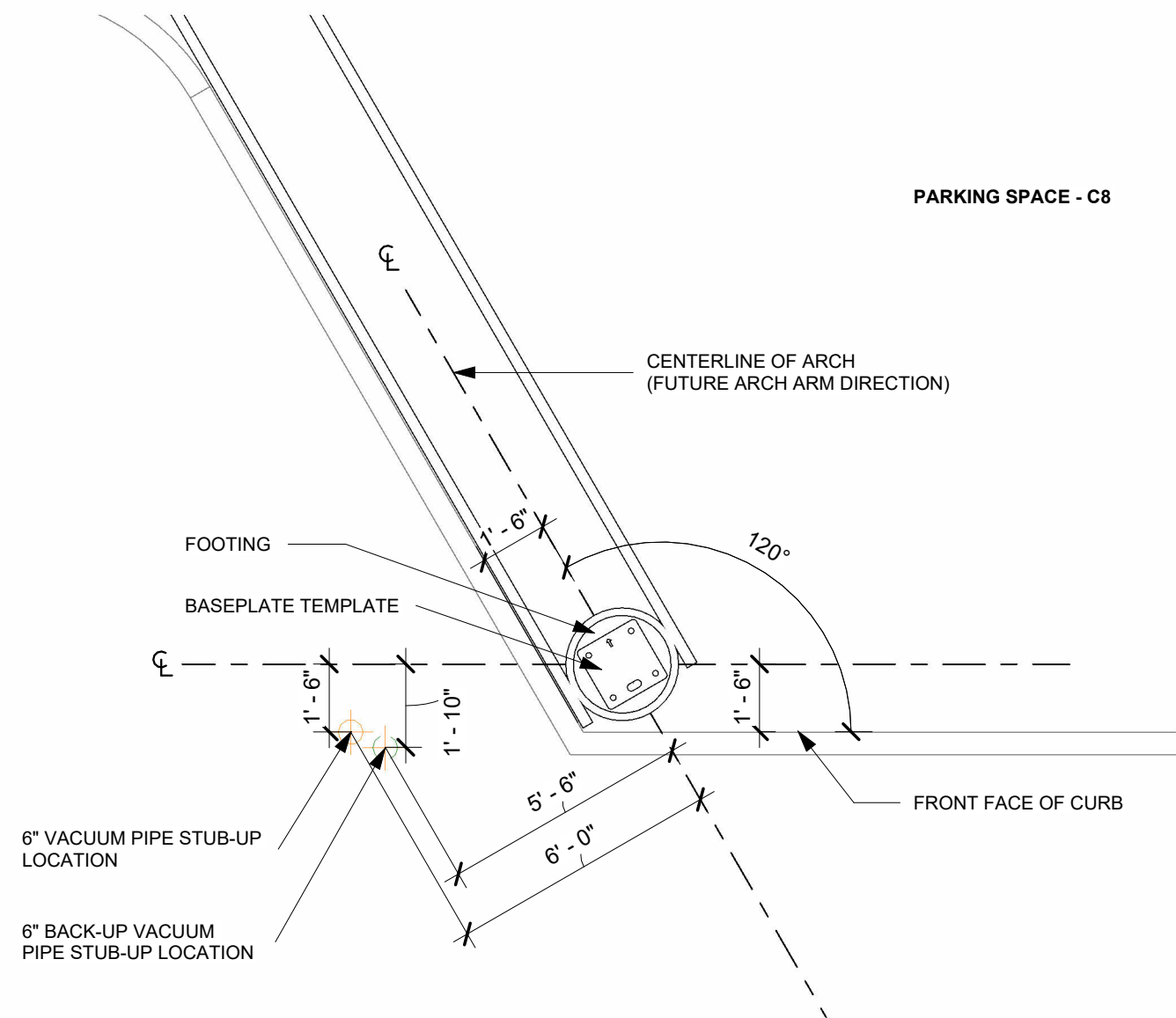
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FOOTING LOCATION PLAN	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD
<b>V401</b>	

1/10/2024 1:45:34 PM



1 BASEPLATE TEMPLATE ORIENTATION B



2 BASEPLATE TEMPLATE ORIENTATION C

**VACUTECH**

AN **NCS** COMPANY

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SHERIDAN, WY 82801  
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**BASEPLATE TEMPLATE**

Project Number 117572

Date 6/5/23

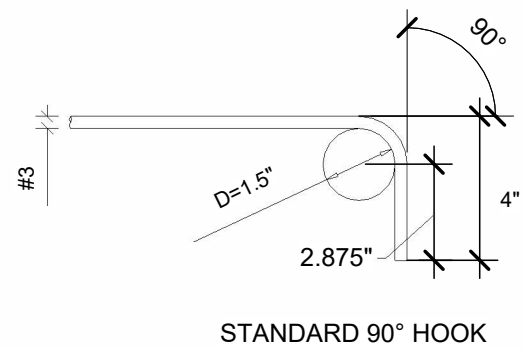
Drawn By FM

Checked By TD

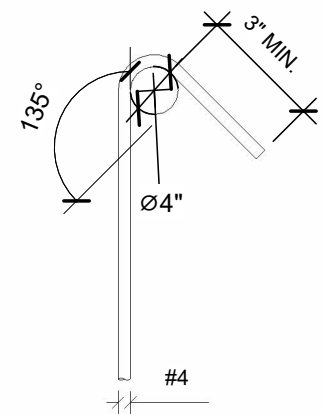
**V402**

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CONSTRUCTION NOTES:  
REFER TO SHEET V721 FOR ASSEMBLY CUTSHEETS



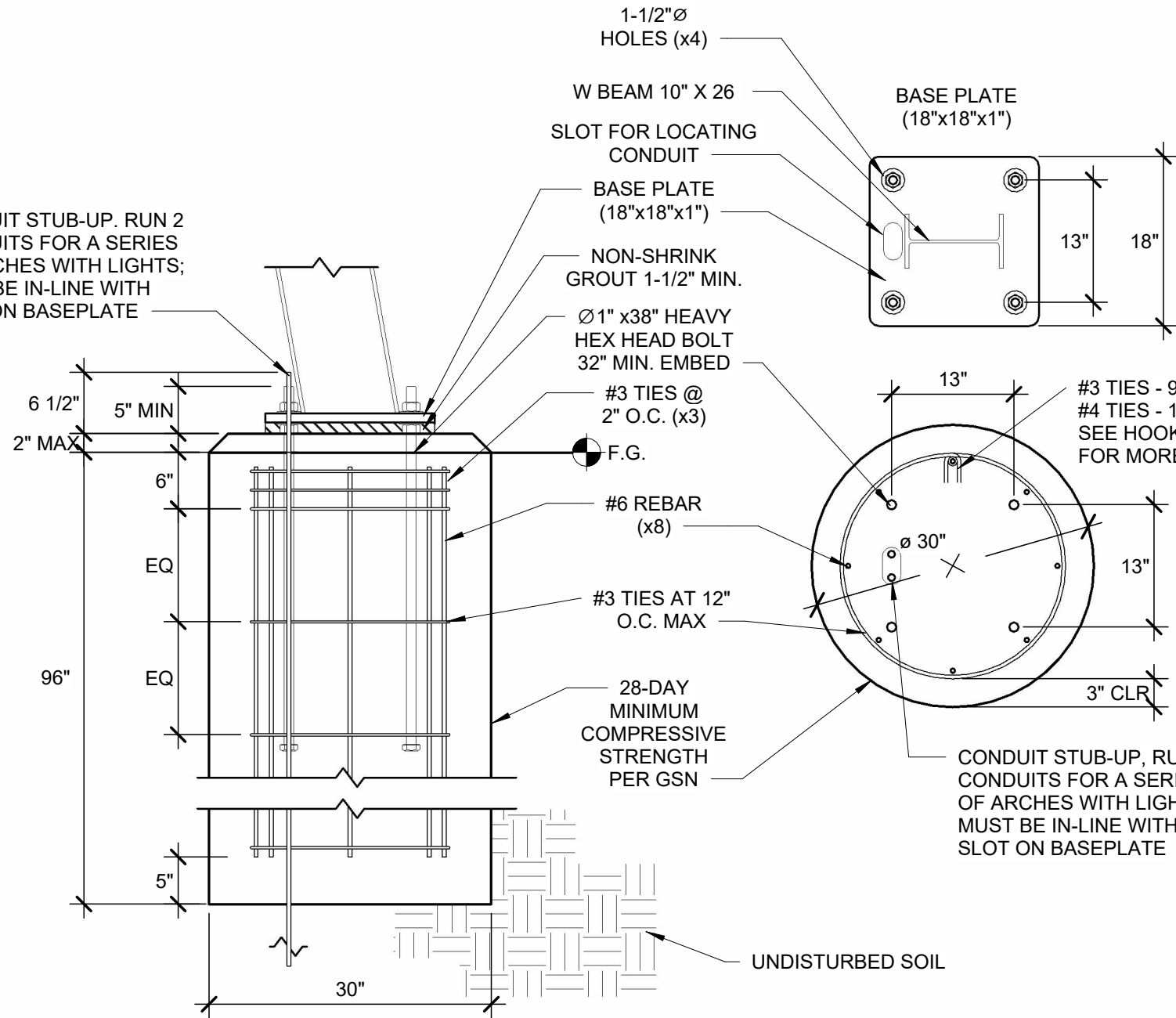
STANDARD 90° HOOK



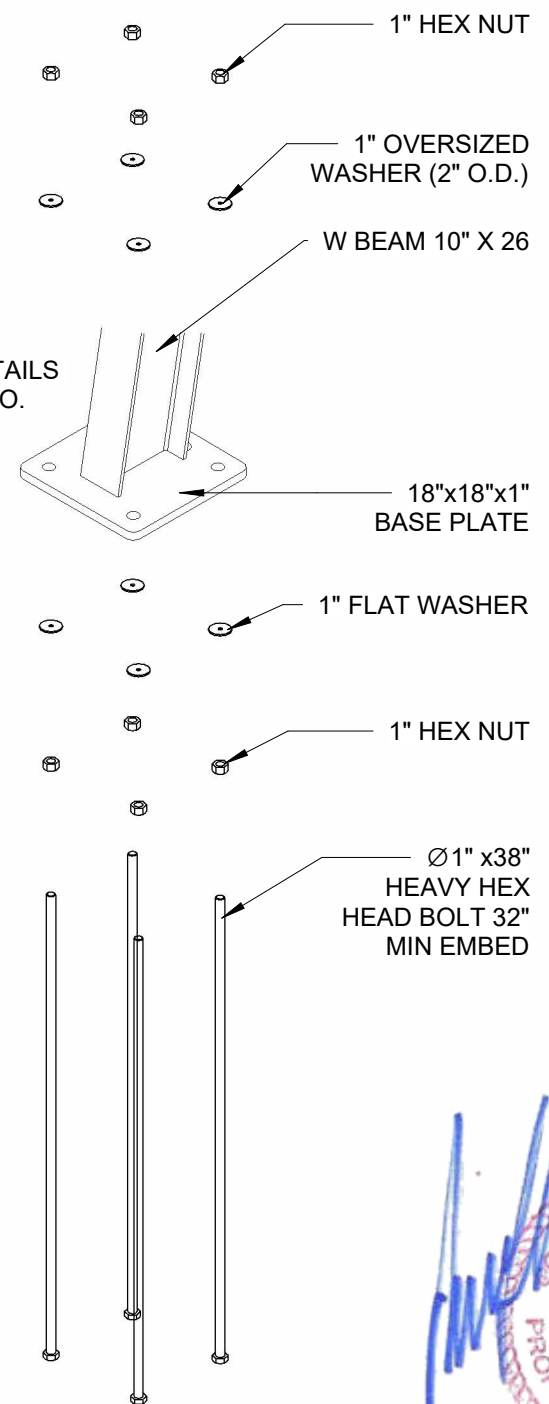
SEISMIC TIE HOOKS 135°

**HOOK DETAILS**

CONDUIT STUB-UP. RUN 2 CONDUITS FOR A SERIES OF ARCHES WITH LIGHTS; MUST BE IN-LINE WITH SLOT ON BASEPLATE



**NOTE:**  
MUST USE BASE PLATE TEMPLATE TO PROPERLY LOCATE ELECTRICAL CONDUIT.  
VACUTECH IS NOT RESPONSIBLE FOR MISLOCATED CONDUIT W/O USING BASE PLATE TEMPLATE.



1 PIER FOOTING - RIVAL ARCH

THE STRUCTURAL PORTIONS OF THESE PLANS HAVE BEEN REVIEWED BY STARLING MADISON LOFQUIST, INC. (SML) FOR COMPLIANCE WITH THE STRUCTURAL CALCULATIONS. SML IS NOT RESPONSIBLE FOR INFORMATION RELATED TO ANY OTHER DISCIPLINES.

**SML** Starling Madison Lofquist, Inc.  
3600 E. University Dr. Suite 1400  
Phoenix, Arizona 85034  
(602) 438-2500  
fax. (602) 438-2505  
JOB # 641-23

1-12-2024  
*Andrew J. Huseman*  
PROFESSIONAL ENGINEER  
ANDREW J. HUSEMAN  
43447  
Exp. 10/31/2025

**VACUTECH**  
AN **NCS** COMPANY  
1350 HI-TECH DRIVE  
SHERIDAN, WY 82801  
PHONE: (307) 675-1982  
EMAIL: vacinfo@ncswash.com  
WEB: www.vacutecnhllc.com

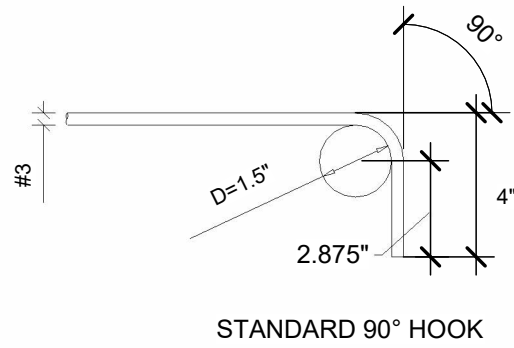
**COBBLESTONE C82**  
9572 TWENTY MILE ROAD  
PARKER, COLORADO 80134

#	Revision	By	Chk	Date
4	ADDED ENGINEERED SPECIFICATIONS	TD	ML	8/21/23
5	REPLACED ALL PALM ARCHES WITH RIVAL ARCHES WITH CORRUGATED ALUMINUM AWNINGS	ML	SL	10/27/23
6	POS ARCHES CHANGED TO RIVAL ARCHES	TJ	ML	11/20/23
7	CHANGED THE CONFIGURATION OF THE POS LAYOUT TO RUN PARALLEL WITH THE LANES	FM	TJ	11/28/23
8	REMOVED 6' LED LIGHTS & INSTALLED 8' LED LIGHTS	FD	TD	12/6/23
9	REVISED FOOTING DETAILS AND GENERAL STRUCTURAL NOTES PER ENGINEERING NOTES	FM	TJ	1/10/24

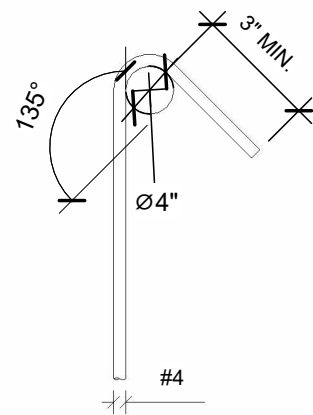
FOOTING DETAIL	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V411**

1/10/2024 1:45:38 PM



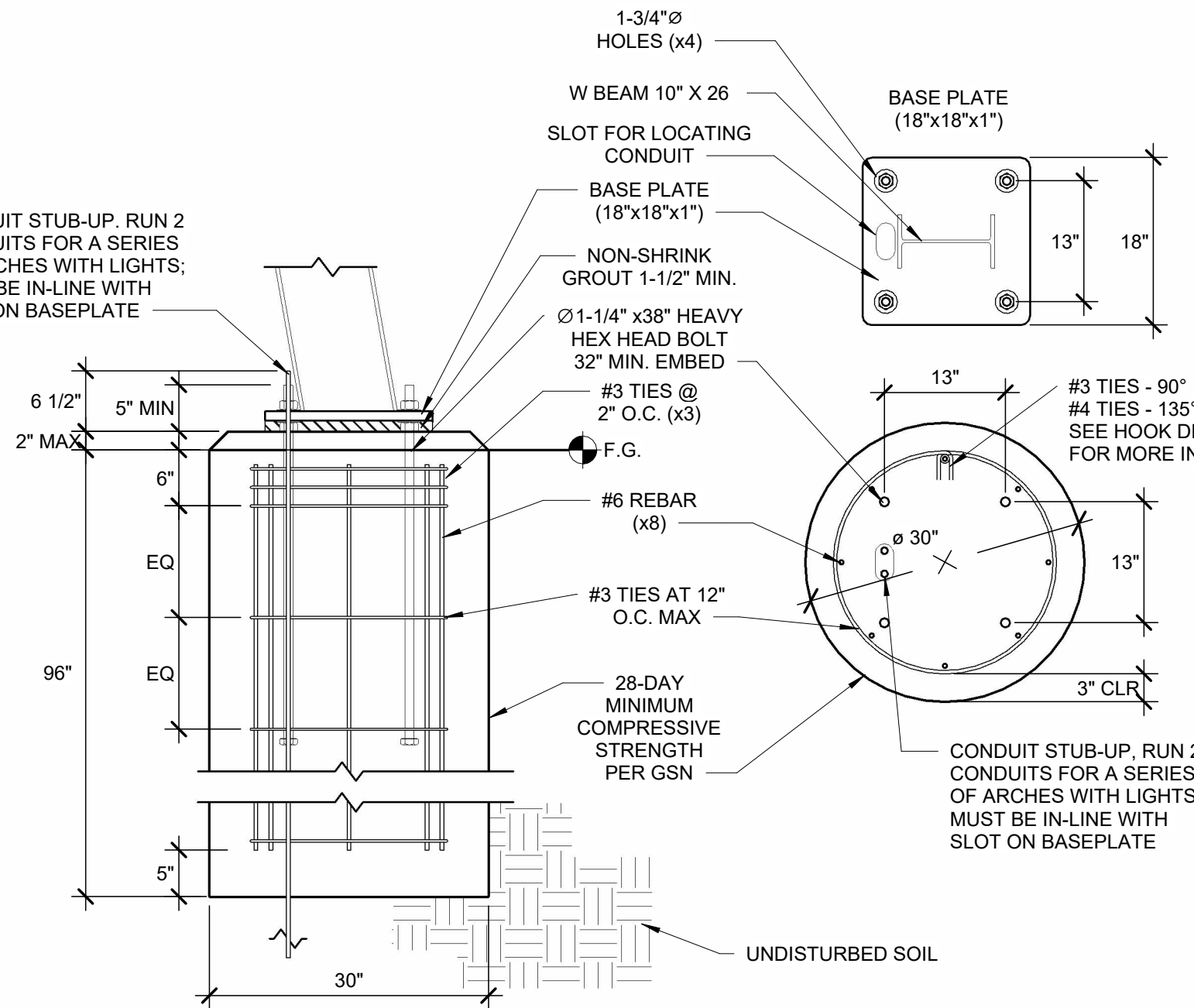
STANDARD 90° HOOK



SEISMIC TIE HOOKS 135°

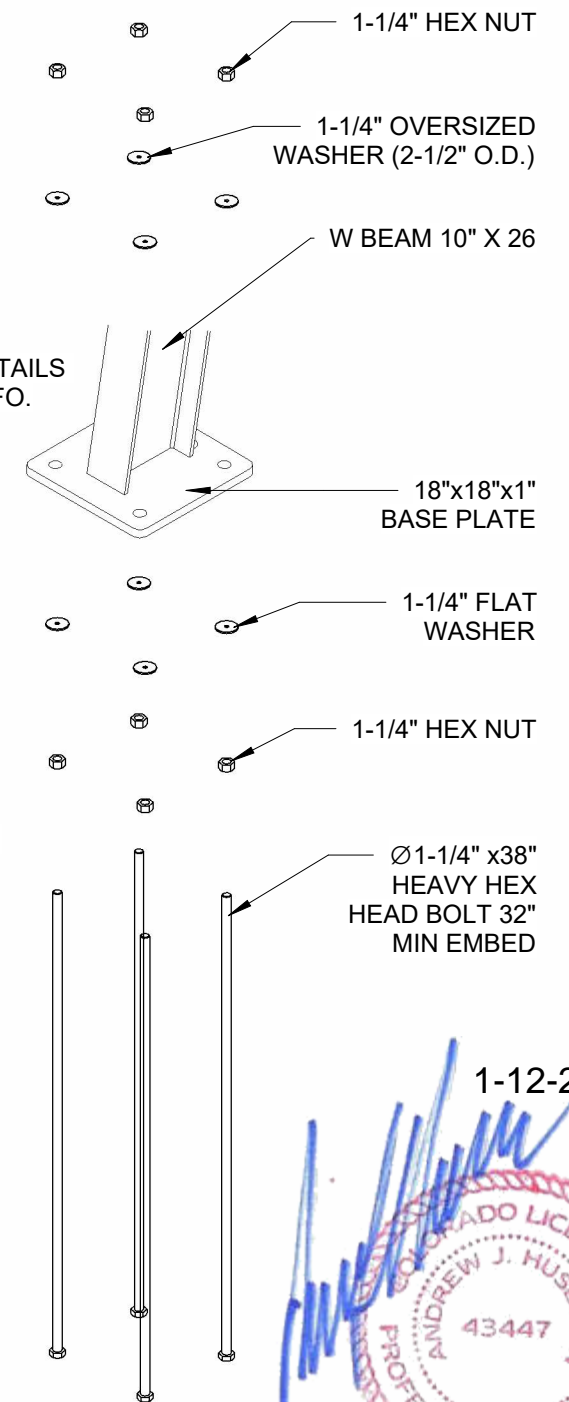
**HOOK DETAILS**

CONDUIT STUB-UP. RUN 2 CONDUITS FOR A SERIES OF ARCHES WITH LIGHTS; MUST BE IN-LINE WITH SLOT ON BASEPLATE



**NOTE:**  
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**CONSTRUCTION NOTES:**  
REFER TO SHEET V721 FOR ASSEMBLY CUTSHEETS



1-12-2024  
  
 Exp. 10/31/2025

**1 PIER FOOTING - POS RIVAL ARCH**

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 Phoenix, Arizona 85034  
 (602) 438-2500  
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 Consulting Structural and Forensic Engineers  
 JOB # 641-23

#	Revision	By	Chk	Date
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POS FOOTING DETAIL	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

**VACUTECH**  
 AN **NCS** COMPANY  
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 WEB: www.vacutechllc.com

**V421**

1/10/2024 1:45:40 PM

**POS AREA**

QTY	ITEM
4	POS RIVAL ARCH
18	PURLINS
3	8' LED LIGHT
3	CORRUGATED STEEL AWNING

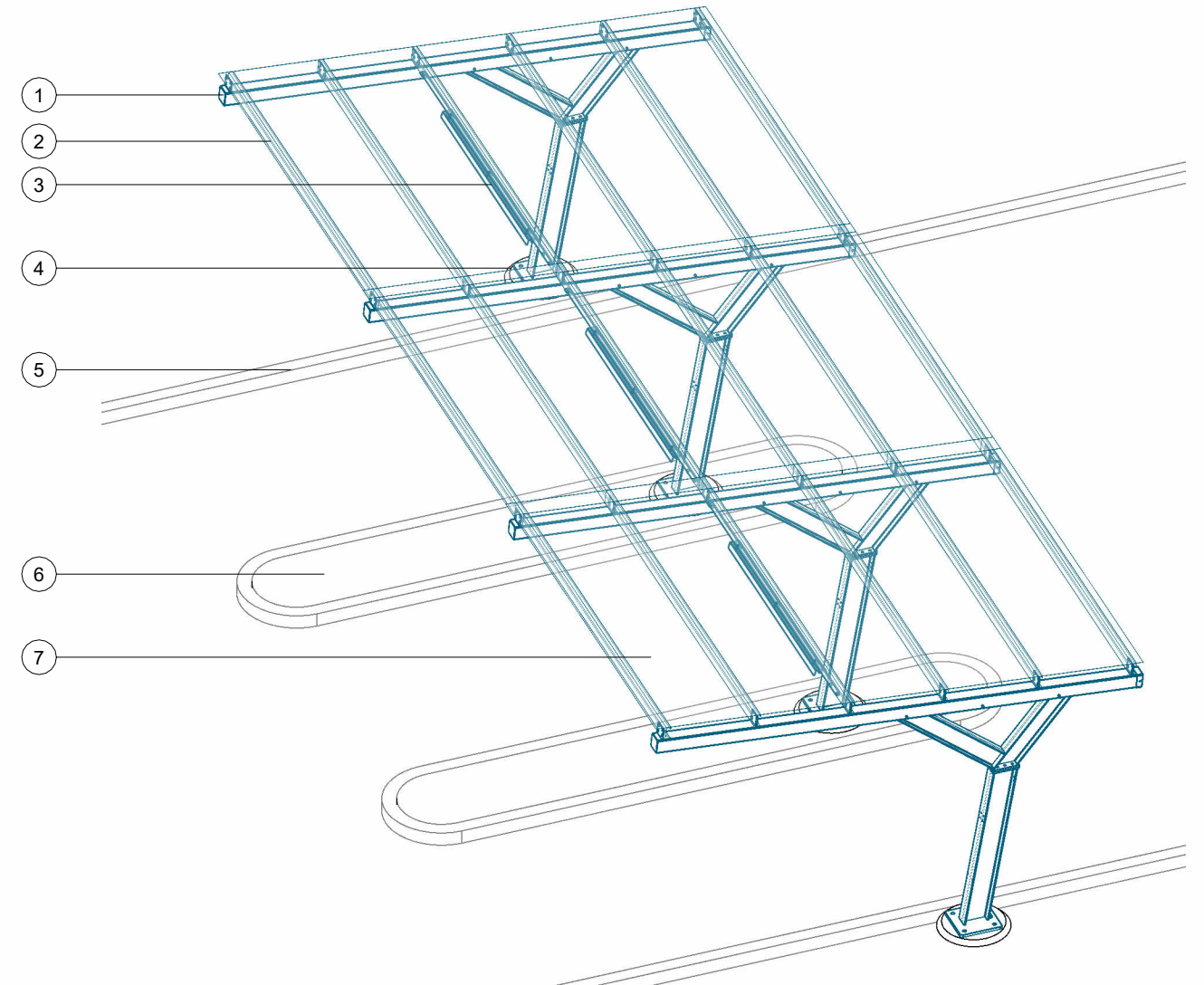
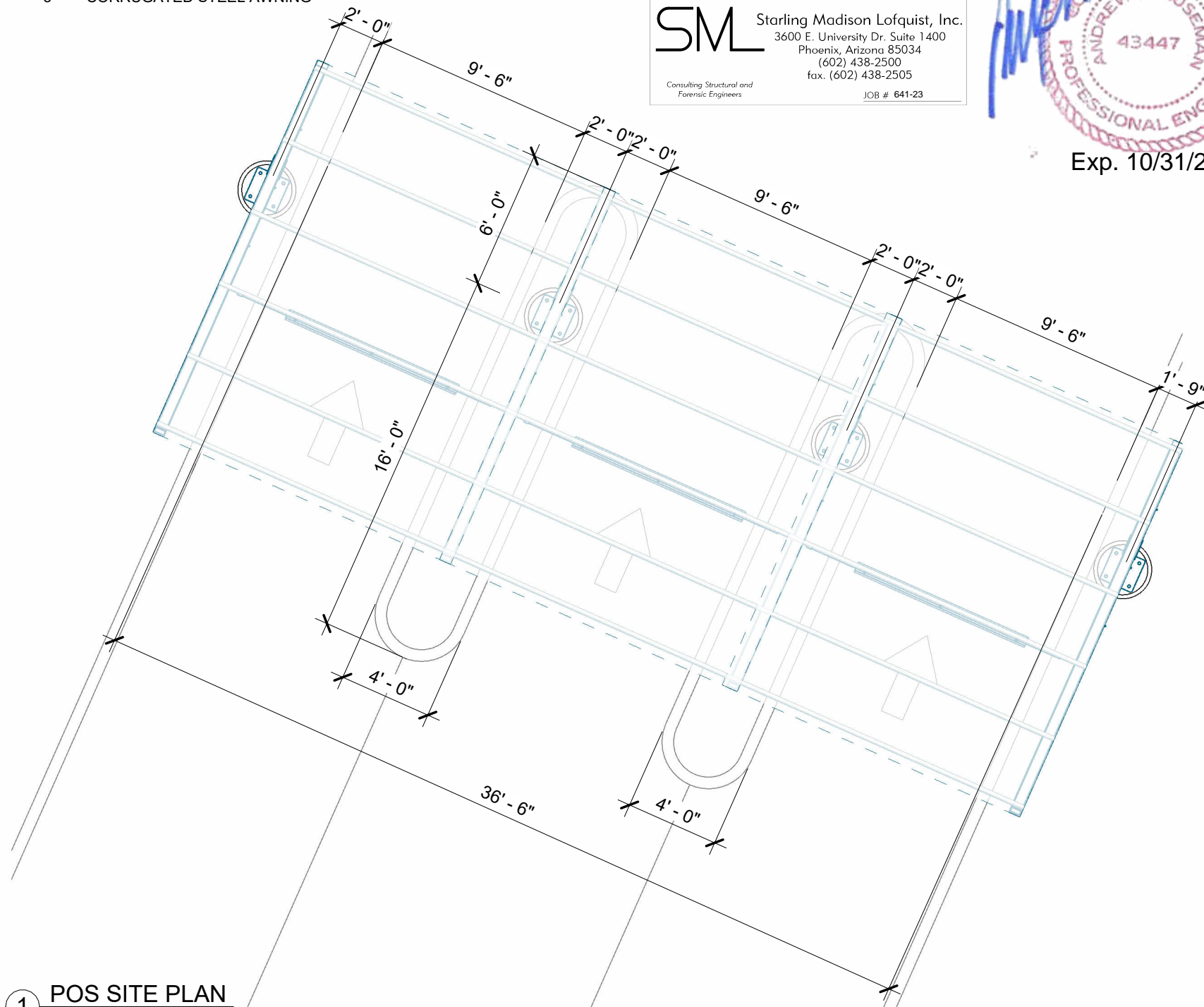
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1-12-2024  
  
 Exp. 10/31/2025

FIELD VERIFY ALL DIMENSIONS

POS SITE ISOMETRIC	
ITEM	DESCRIPTION
1	POS ARCH
2	PURLIN
3	8' POS LED LIGHT W/ CROSSBAR MOUNT
4	POS ARCH FOOTING
5	CURB
6	POS ISLAND
7	CORRUGATED STEEL AWNING BERRIDGE DEEP - DECK PANEL - 22 GA ( 1.5" TALL )



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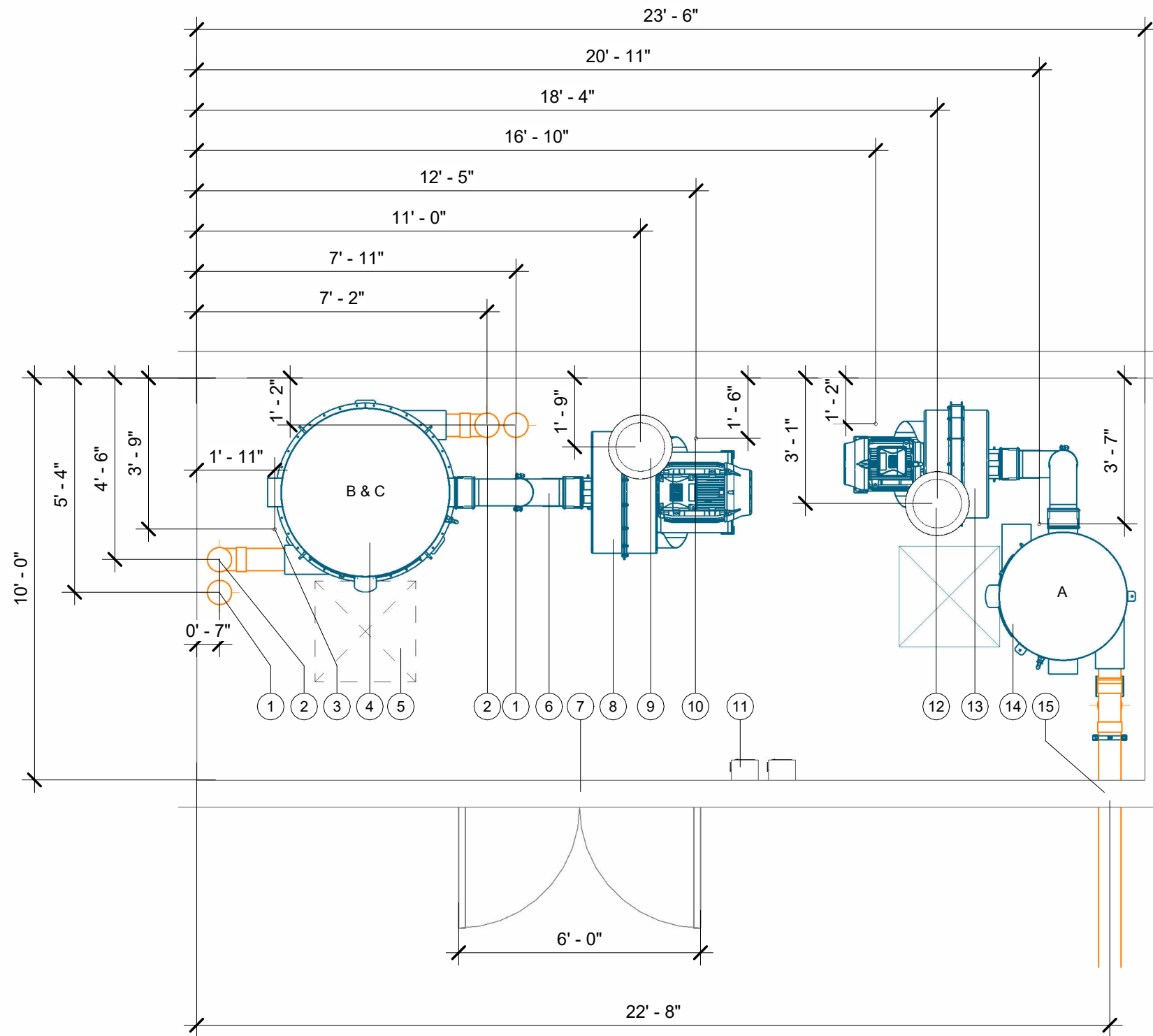
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POS DETAILS	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V501**

1/10/2024 1:45:42 PM



- EQUIPMENT NOTES:**
- 23'6"Lx10'Wx4'H MINIMUM FLAT AND LEVEL CONCRETE FLOOR SPACE REQUIRED FOR VACUUM EQUIPMENT VERIFY SEPARATOR WILL FIT THROUGH DOOR (72" CLEAR OPENING WIDTH RECOMMENDED)
  - WALL PENETRATION: CORE DRILLING MAY BE REQUIRED FIELD VERIFY HEIGHT
  - NOTE: IF VACUUM EQUIPMENT IS ENCLOSED WITH ROOF/CEILING, REFER TO VENTILATION REQUIREMENTS UNDER EQUIPMENT WARRANTY INFORMATION
  - EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
  - FIELD VERIFY ALL DIMENSIONS
  - SEE POWER EQUIPMENT DETAILS ON V701
  - SEE VFD DETAILS ON V731

EQUIPMENT SITE PLAN	
ITEM	DESCRIPTION
1	6" BACK-UP VACUUM PIPE STUB-UP LOCATION
2	6" VACUUM PIPE STUB-UP LOCATION
3	3/4" CONDUIT STUB-UP LOCATION FOR TRANSDUCER WIRE; SEE CONDUIT REQUIREMENT FOR VFD & TURBINE
4	50x108 FILTER SEPARATOR
5	30"x30" MINIMUM SPACE REQUIRED TO REMOVE DEBRIS BUCKET
6	8" SEPARATOR/TURBINE HOOK-UP KIT (ALUMINUM)
7	VERIFY SEPARATOR WILL FIT THROUGH DOOR
8	75HP T5 DIRECT DRIVE TURBINE (HIGH ELEVATION)
9	8" T5 INDOOR EXHAUST SILENCER; EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
10	RECOMMENDED TURBINE MOTOR CONDUIT STUB-UP LOCATION, SIZE PER N.E.C.
11	RECOMMENDED DISCONNECT LOCATION (WITHIN SIGHT OF TURBINE), CLEARANCE REQUIRED IN FRONT
12	8" T4 INDOOR EXHAUST SILENCER; EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
13	40HP T4 DIRECT DRIVE TURBINE (HIGH ELEVATION)
14	38x88 FILTER SEPARATOR
15	WALL PENETRATION: CORE DRILLING MAY BE REQUIRED

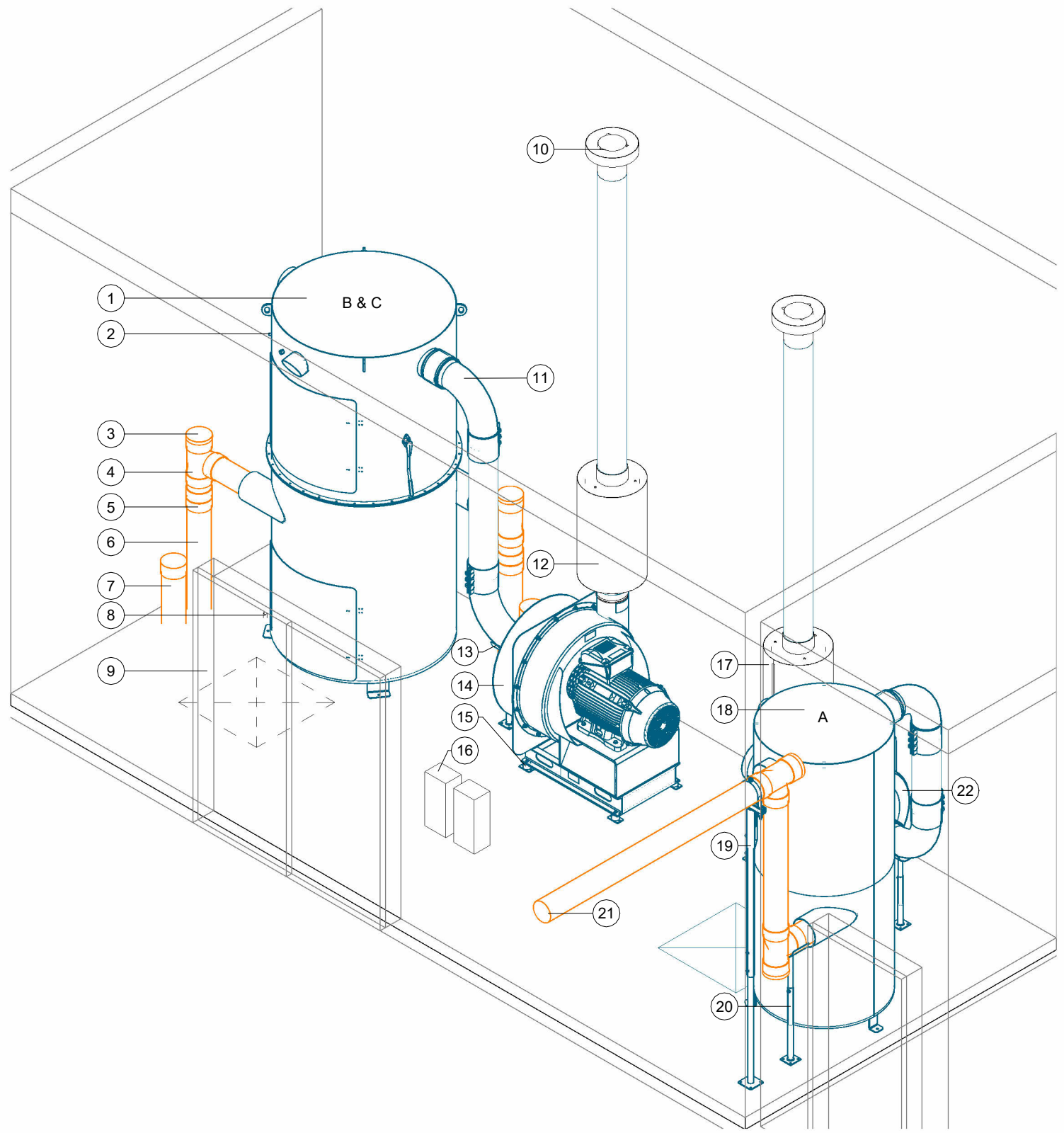
**VACUTECH**  
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 PARKER, COLORADO 80134

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EQUIPMENT SITE PLAN	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD
<b>V601</b>	

1/10/2024 1:45:44 PM



- EQUIPMENT NOTES:**
- 23'6" Lx10'Wx4'H MINIMUM FLAT AND LEVEL CONCRETE FLOOR SPACE REQUIRED FOR VACUUM EQUIPMENT VERIFY SEPARATOR WILL FIT THROUGH DOOR (72" CLEAR OPENING WIDTH RECOMMENDED)
  - WALL PENETRATION: CORE DRILLING MAY BE REQUIRED FIELD VERIFY HEIGHT
  - NOTE: IF VACUUM EQUIPMENT IS ENCLOSED WITH ROOF/CEILING, REFER TO VENTILATION REQUIREMENTS UNDER EQUIPMENT WARRANTY INFORMATION
  - EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
  - FIELD VERIFY ALL DIMENSIONS
  - SEE POWER EQUIPMENT DETAILS ON V701
  - SEE VFD DETAILS ON V731

EQUIPMENT SITE ISOMETRIC	
ITEM	DESCRIPTION
1	50x108 FILTER SEPARATOR
2	TRANSDUCER CONNECTION LOCATION ON SEPARATOR
3	6" CLEAN-OUT (TYP.)
4	6" PVC SANITARY TEE
5	6" FERNCO
6	6" VACUUM PIPE STUB-UP LOCATION
7	6" BACK-UP VACUUM PIPE STUB-UP LOCATION
8	3/4" CONDUIT STUB-UP LOCATION FOR TRANSDUCER WIRE; SEE CONDUIT REQUIREMENT FOR VFD & TURBINE
9	VERIFY SEPARATOR WILL FIT THROUGH DOOR
10	8" ROOF CAP
11	8" SEPARATOR/TURBINE HOOK-UP KIT (ALUMINUM)
12	8" T5 INDOOR EXHAUST SILENCER; EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
13	TURBINE PIPE SUPPORT
14	75HP T5 DIRECT DRIVE TURBINE (HIGH ELEVATION)
15	TURBINE VIBRATION ISOLATOR
16	RECOMMENDED DISCONNECT LOCATION (WITHIN SIGHT OF TURBINE), CLEARANCE REQUIRED IN FRONT
17	8" T4 INDOOR EXHAUST SILENCER; EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
18	38x88 FILTER SEPARATOR
19	OVERHEAD PIPE SUPPORT
20	SEPARATOR PIPE SUPPORT
21	WALL PENETRATION: CORE DRILLING MAY BE REQUIRED
22	40HP T4 DIRECT DRIVE TURBINE (HIGH ELEVATION)

1 EQUIPMENT ISOMETRIC

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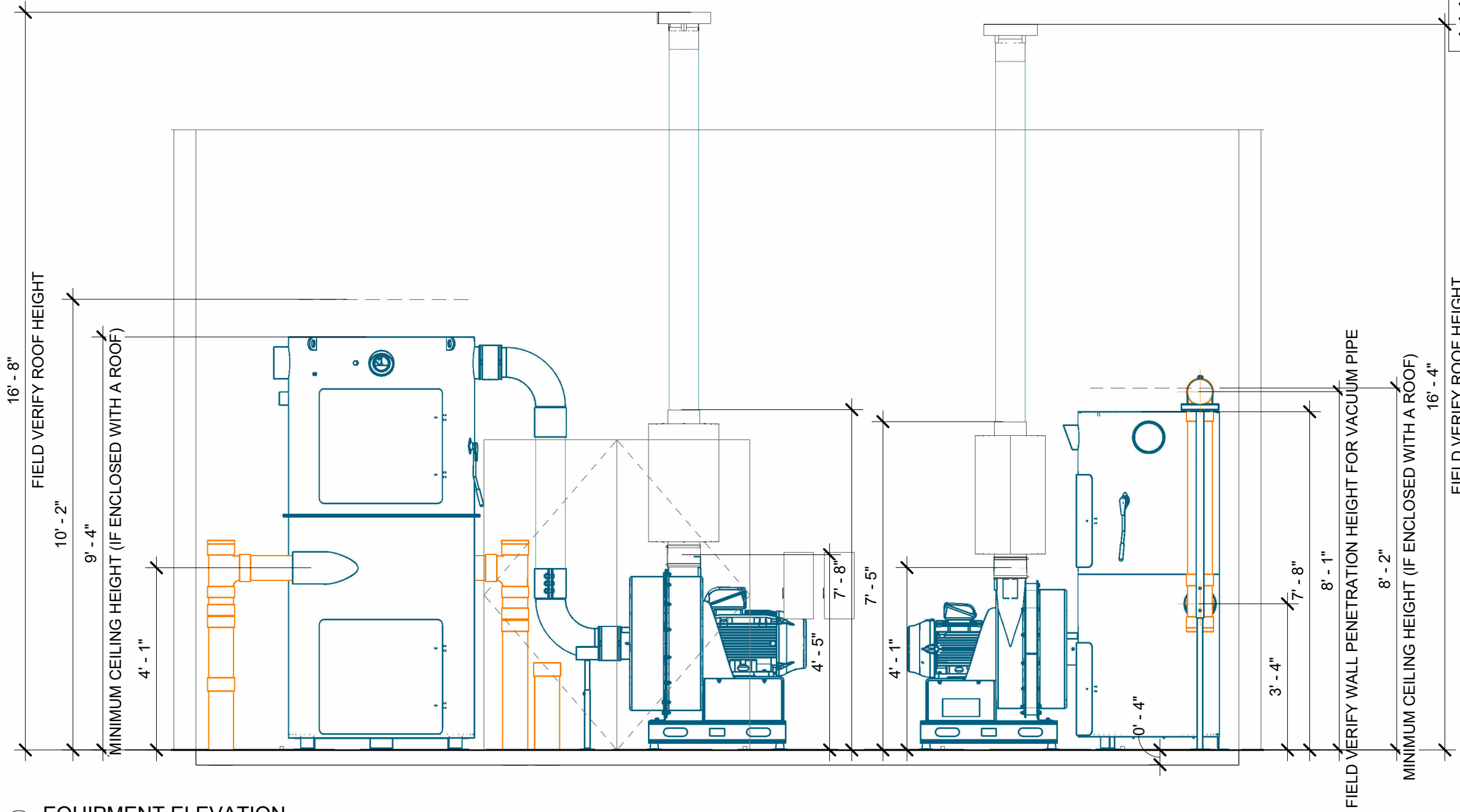
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EQUIP. SITE ISOMETRIC	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V611**

1/10/2024 1:45:47 PM

- EQUIPMENT NOTES:**
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  - EXHAUST TURBINE TO OUTSIDE AIR OR ATMOSPHERE W/ 8" ALUMINUM TUBE OR METAL PIPE
  - FIELD VERIFY ALL DIMENSIONS
  - SEE POWER EQUIPMENT DETAILS ON V701
  - SEE VFD DETAILS ON V731



1 EQUIPMENT ELEVATION

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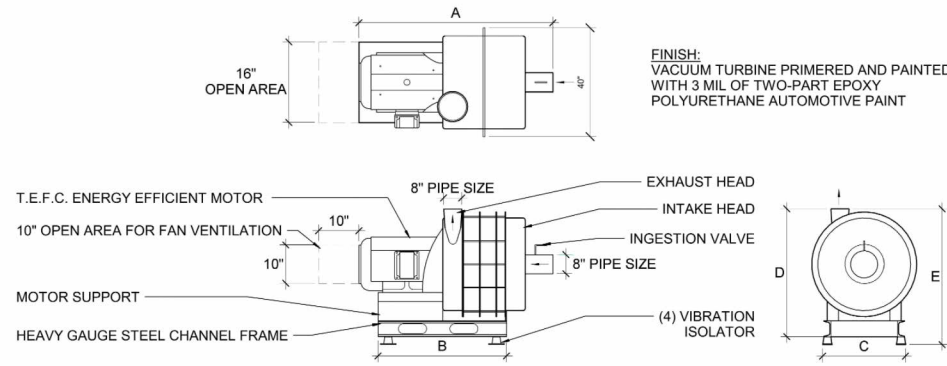
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EQUIPMENT ELEVATION	
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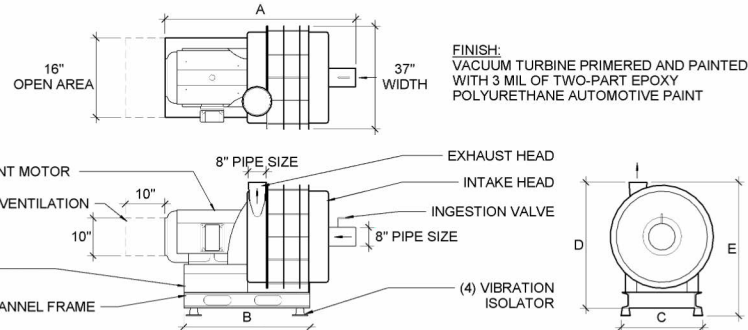
**V621**

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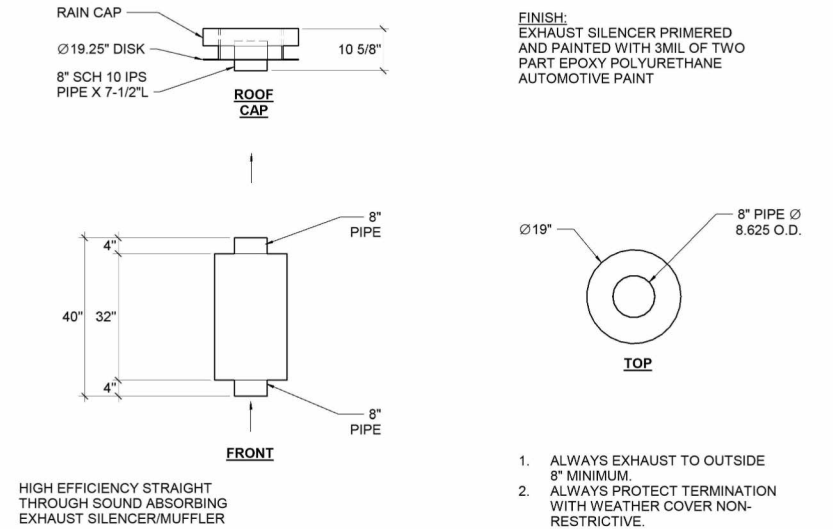
T5 DIRECT DRIVE VACSTAR TURBINE									
MODEL	HP	STAGES	A	B	C	D	E	APPROX. WT (LBS)	
FT-DD-T560HP2	60	2	50"	37"	24 1/16"	50 1/2"	52 1/2"	1495	
FT-DD-T575HP2	75	2	51"	37"	24 1/16"	50 1/2"	52 1/2"	1575	

1 TURBINE - T5 DD HIGH ELEVATION



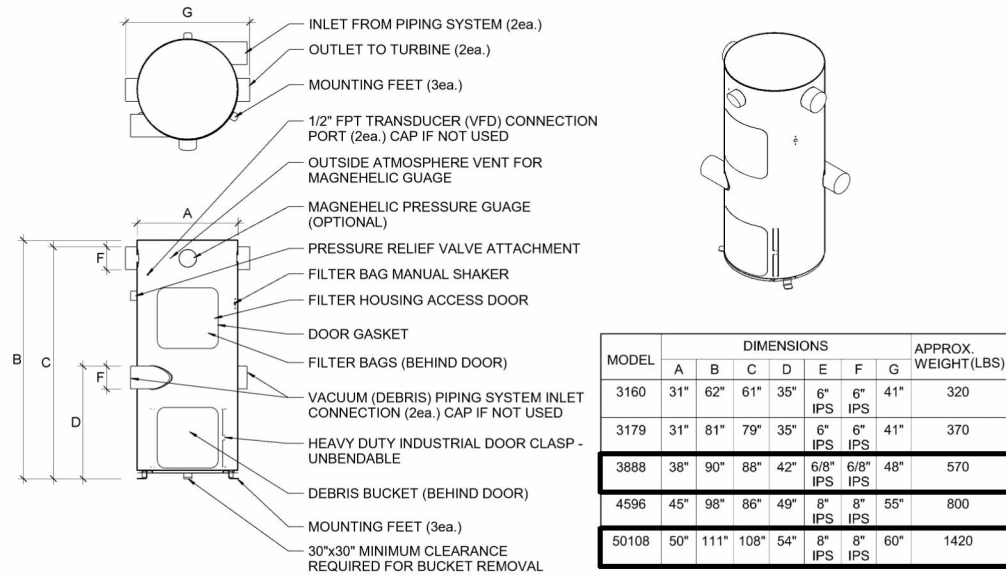
T4 DIRECT DRIVE HIGH ELEVATION VACSTAR TURBINE									
MODEL	HP	STAGES	A	B	C	D	E	APPROX. WT (LBS)	
FT-DD-T440HP3-HE	40	3	49 9/16"	37"	16"	48 1/2"	50 3/8"	1170	
FT-DD-T450HP3-HE	50	3	51 1/8"	37"	16"	48 1/2"	50 3/8"	1210	
FT-DD-T460HP3-HE	60	3	52 1/16"	39"	19"	50 1/2"	52 3/8"	1510	
FT-DD-T475HP3-HE	75	3	53 1/16"	39"	19"	50 1/2"	52 3/8"	1580	

2 TURBINE - T4 DD - HIGH ELEVATION



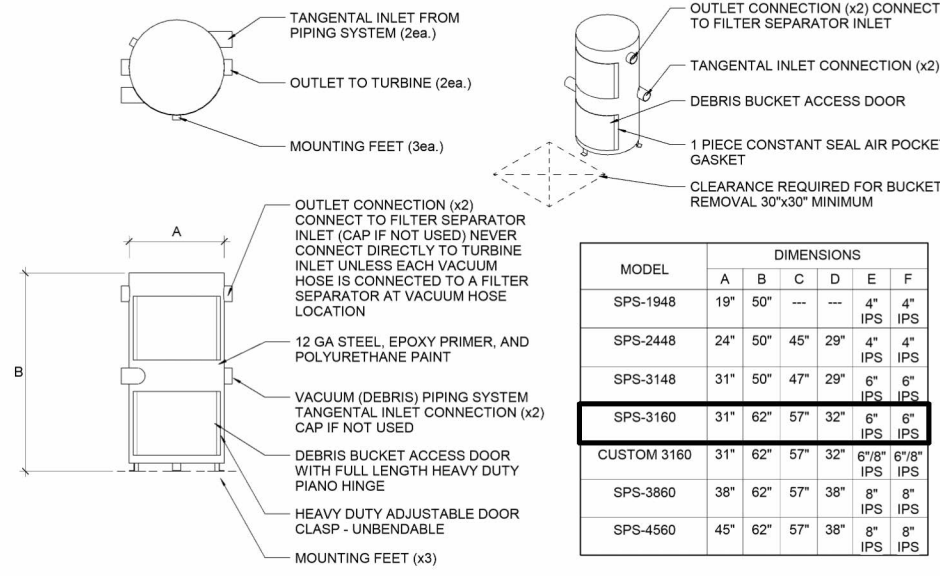
1. ALWAYS EXHAUST TO OUTSIDE 8" MINIMUM.
2. ALWAYS PROTECT TERMINATION WITH WEATHER COVER NON-RESTRICTIVE.

3 EXHAUST SILENCER - T4/T5 INDOOR



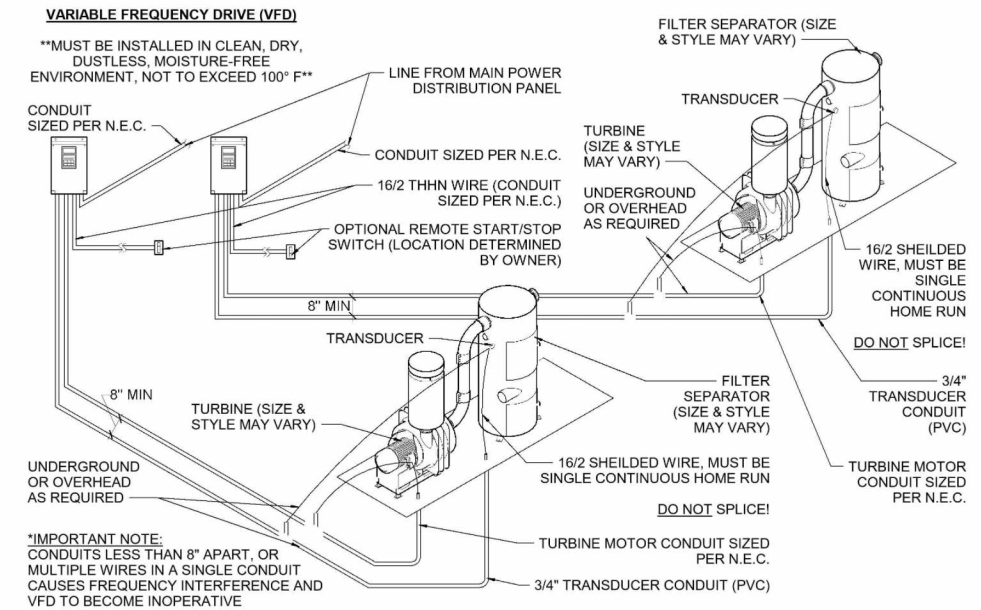
MODEL	DIMENSIONS							APPROX. WEIGHT (LBS)
	A	B	C	D	E	F	G	
3160	31"	62"	61"	35"	6" IPS	6" IPS	41"	320
3179	31"	81"	79"	35"	6" IPS	6" IPS	41"	370
3888	38"	90"	88"	42"	6 7/8" IPS	6 7/8" IPS	48"	570
4596	45"	98"	86"	49"	8" IPS	8" IPS	55"	800
50108	50"	111"	108"	54"	8" IPS	8" IPS	60"	1420

4 SEPARATOR - FILTER



MODEL	DIMENSIONS					
	A	B	C	D	E	F
SPS-1948	19"	50"	---	---	4" IPS	4" IPS
SPS-2448	24"	50"	45"	29"	4" IPS	4" IPS
SPS-3148	31"	50"	47"	29"	6" IPS	6" IPS
SPS-3160	31"	62"	57"	32"	6" IPS	6" IPS
CUSTOM 3160	31"	62"	57"	32"	6 7/8" IPS	6 7/8" IPS
SPS-3860	38"	62"	57"	38"	8" IPS	8" IPS
SPS-4560	45"	62"	57"	38"	8" IPS	8" IPS

5 SEPARATOR - PRIMARY



6 CONDUIT - 2 SYSTEM VFD - NEMA 12

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**EQUIPMENT DETAILS**

Project Number	117572
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Checked By	TD

**V701**

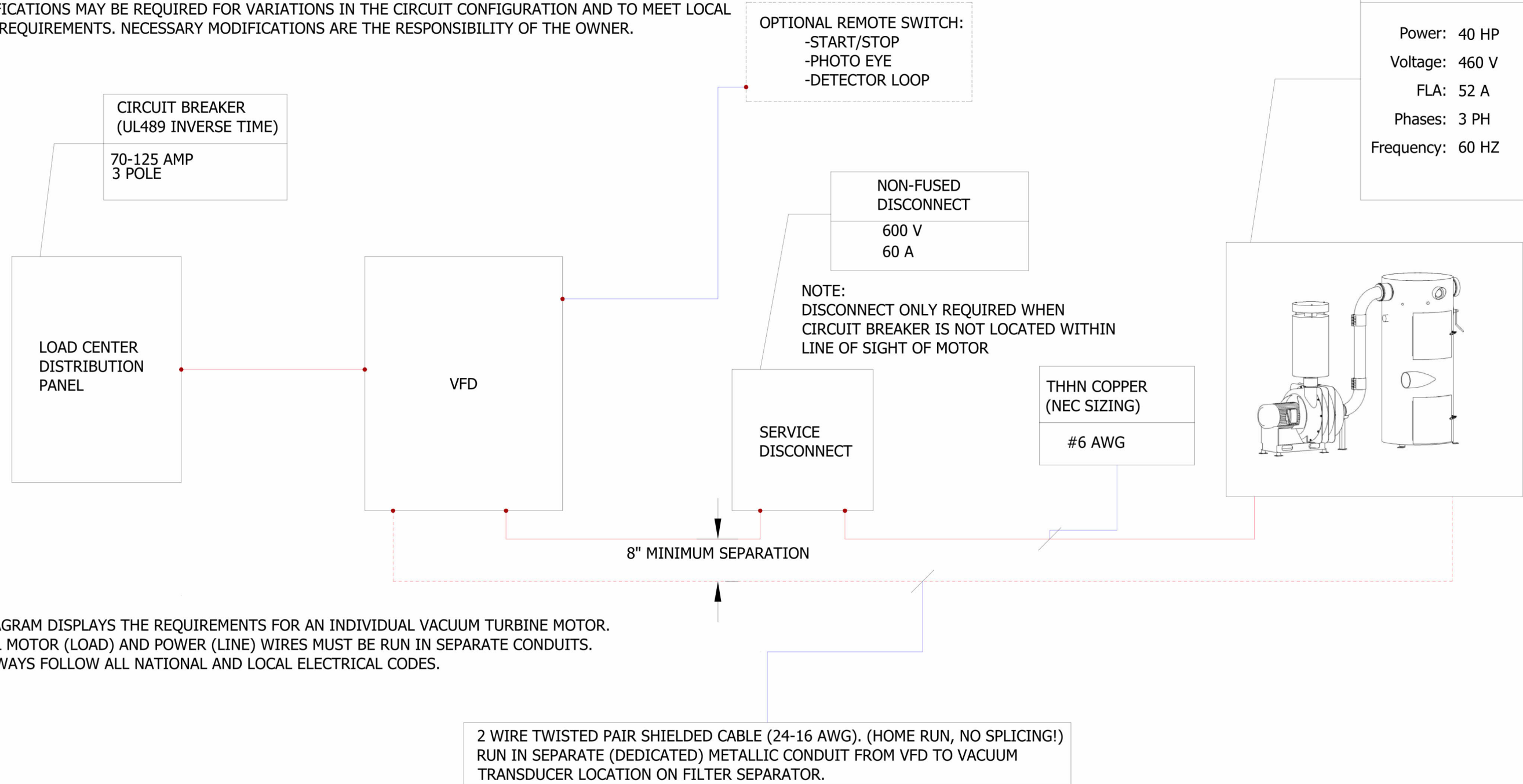
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**DISCLAIMER:**

DIAGRAMS ARE CONSISTENT WITH NATIONAL ELECTRIC CODE (NEC) FOR A SINGLE VACUUM PRODUCER CIRCUIT. MODIFICATIONS MAY BE REQUIRED FOR VARIATIONS IN THE CIRCUIT CONFIGURATION AND TO MEET LOCAL CODE REQUIREMENTS. NECESSARY MODIFICATIONS ARE THE RESPONSIBILITY OF THE OWNER.

**VACUUM PRODUCER AND SEPARATOR**

Power: 40 HP  
 Voltage: 460 V  
 FLA: 52 A  
 Phases: 3 PH  
 Frequency: 60 HZ



1 ELECTRICAL DIAGRAM - VFD - 40HP 460V

**VACUTECH**  
 AN **NCS** COMPANY  
 1350 HI-TECH DRIVE  
 SHERIDAN, WY 82801  
 PHONE: (307) 675-1982  
 EMAIL: vacinfo@ncswash.com  
 WEB: www.vacutechllc.com

**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

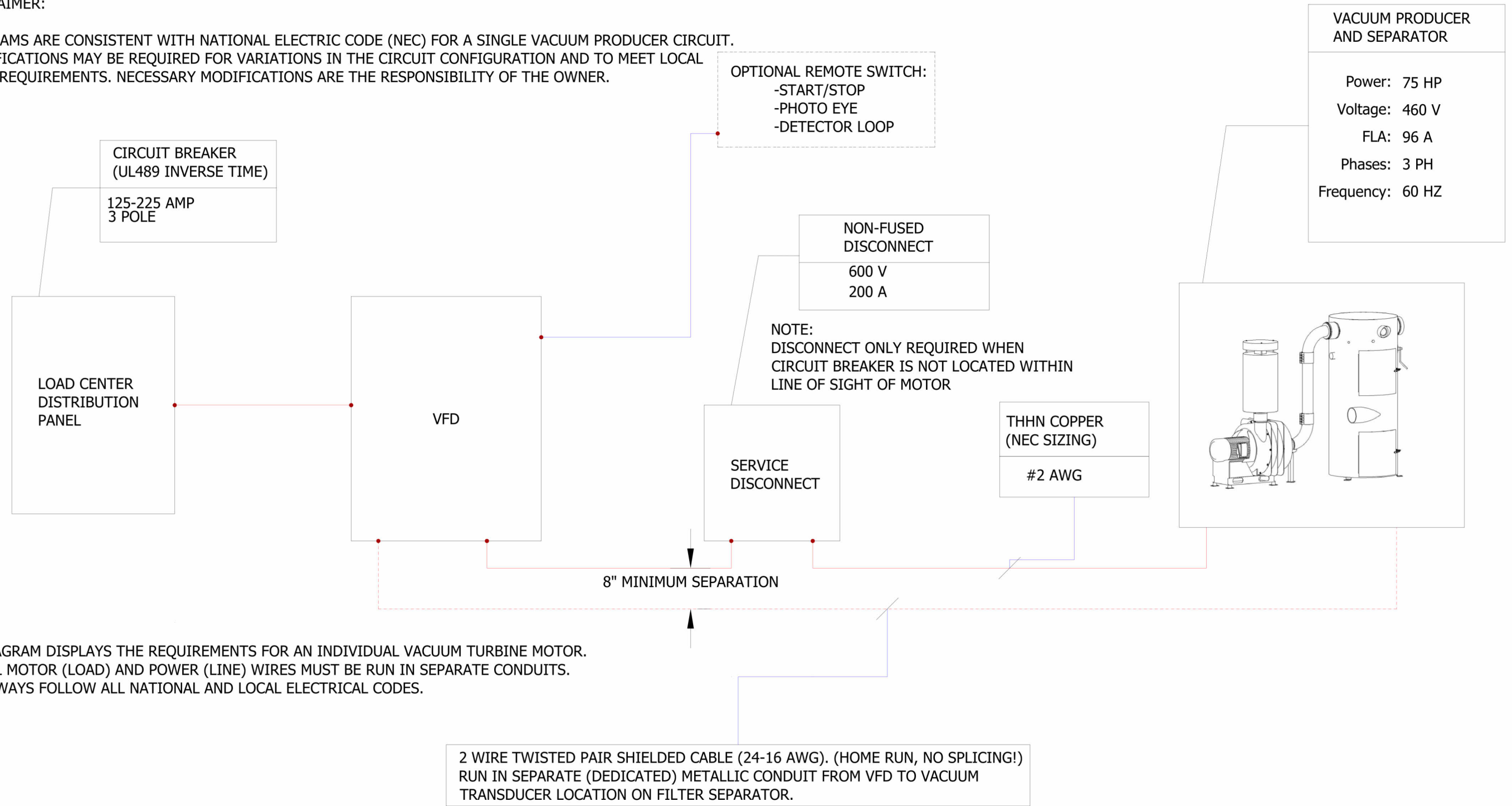
#	Revision	By	Chk	Date
4	ADDED ENGINEERED SPECIFICATIONS	TD	ML	8/21/23
5	REPLACED ALL PALM ARCHES WITH RIVAL ARCHES WITH CORRUGATED ALUMINUM AWNINGS	ML	SL	10/27/23
6	POS ARCHES CHANGED TO RIVAL ARCHES	TJ	ML	11/20/23
7	CHANGED THE CONFIGURATION OF THE POS LAYOUT TO RUN PARALLEL WITH THE LANES	FM	TJ	11/28/23
8	REMOVED 6' LED LIGHTS & INSTALLED 8' LED LIGHTS	FD	TD	12/6/23
9	REVISED FOOTING DETAILS AND GENERAL STRUCTURAL NOTES PER ENGINEERING NOTES	FM	TJ	1/10/24

ELECTRICAL DIAGRAM A		<b>V702</b>
Project Number	117572	
Date	6/5/23	
Drawn By	FM	
Checked By	TD	

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**DISCLAIMER:**

DIAGRAMS ARE CONSISTENT WITH NATIONAL ELECTRIC CODE (NEC) FOR A SINGLE VACUUM PRODUCER CIRCUIT. MODIFICATIONS MAY BE REQUIRED FOR VARIATIONS IN THE CIRCUIT CONFIGURATION AND TO MEET LOCAL CODE REQUIREMENTS. NECESSARY MODIFICATIONS ARE THE RESPONSIBILITY OF THE OWNER.



**NOTE:**

1. DIAGRAM DISPLAYS THE REQUIREMENTS FOR AN INDIVIDUAL VACUUM TURBINE MOTOR.
2. ALL MOTOR (LOAD) AND POWER (LINE) WIRES MUST BE RUN IN SEPARATE CONDUITS.
3. ALWAYS FOLLOW ALL NATIONAL AND LOCAL ELECTRICAL CODES.

2 WIRE TWISTED PAIR SHIELDED CABLE (24-16 AWG). (HOME RUN, NO SPLICING!) RUN IN SEPARATE (DEDICATED) METALLIC CONDUIT FROM VFD TO VACUUM TRANSDUCER LOCATION ON FILTER SEPARATOR.

1 ELECTRICAL DIAGRAM - VFD - 75HP 460V

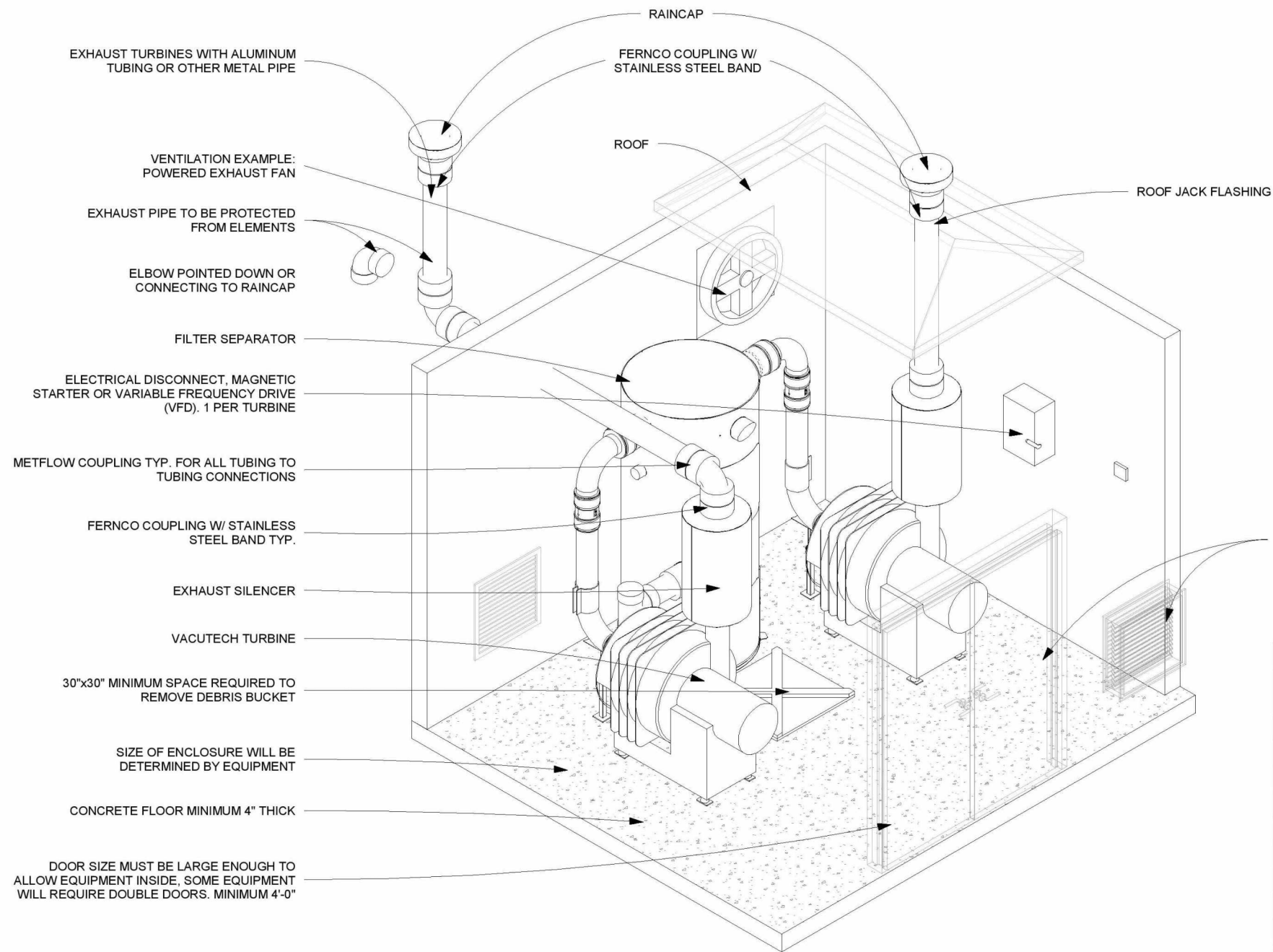
**VACUTECH**  
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<b>ELECT. DIAGRAM B &amp; C</b>		<b>V703</b>
Project Number	117572	
Date	6/5/23	
Drawn By	FM	
Checked By	TD	

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- RAINCAP
- FERNCO COUPLING W/ STAINLESS STEEL BAND
- ROOF
- ROOF JACK FLASHING
- VENTILATION EXAMPLE: POWERED EXHAUST FAN
- EXHAUST PIPE TO BE PROTECTED FROM ELEMENTS
- ELBOW POINTED DOWN OR CONNECTING TO RAINCAP
- FILTER SEPARATOR
- ELECTRICAL DISCONNECT, MAGNETIC STARTER OR VARIABLE FREQUENCY DRIVE (VFD), 1 PER TURBINE
- METFLOW COUPLING TYP. FOR ALL TUBING TO TUBING CONNECTIONS
- FERNCO COUPLING W/ STAINLESS STEEL BAND TYP.
- EXHAUST SILENCER
- VACUTECH TURBINE
- 30"x30" MINIMUM SPACE REQUIRED TO REMOVE DEBRIS BUCKET
- SIZE OF ENCLOSURE WILL BE DETERMINED BY EQUIPMENT
- CONCRETE FLOOR MINIMUM 4" THICK
- DOOR SIZE MUST BE LARGE ENOUGH TO ALLOW EQUIPMENT INSIDE, SOME EQUIPMENT WILL REQUIRE DOUBLE DOORS. MINIMUM 4'-0"

VENTILATION EXAMPLE: LOUVERED ENCLOSURE DOOR, OR LOUVERS IN WALL

**HEAT GENERATION TABLE**

HP	Across the Line Starter		Variable Frequency Drive (VFD)	
	Heat Load (BTU/HR)	Required Airflow (CFM)	Heat Load (BTU/HR)	Required Airflow (CFM)
10	12722	915	2544	284
15	19084	1373	3817	426
20	25444	1830	5089	568
25	31805	2288	6361	710
30	38166	2745	7633	852
40	50889	3660	10178	1136
50	63611	4575	12722	1420
60	76333	5490	15267	1704
75	95416	6863	19083	2130
100	127222	9150	25444	2840

VACUUM EQUIPMENT INSTALLED IN AN ENCLOSURE WITH 4 WALLS AND A ROOF MUST BE ADEQUATELY VENTILATED OR ROOM CONDITIONED IN ORDER TO PROPERLY DISSIPATE THE HEAT GENERATED BY THE MECHANICAL AND ELECTRICAL EQUIPMENT. IMPROPER VENTILATION AND HEAT DISSIPATION CAN AND WILL RESULT IN DAMAGE TO THE MECHANICAL AND ELECTRICAL EQUIPMENT INCLUDING VFD'S, MOTOR STARTERS, ELECTRIC MOTORS AND VACUUM PRODUCERS. PLEASE REFERENCE THE HEAT GENERATION TABLE INCLUDED IN THIS DETAIL TO DETERMINE THE AMOUNT OF HEAT LOAD THAT THE TURBINE(S) AND STARTING EQUIPMENT WILL GENERATE AND THE CORRESPONDING REQUIRED AIR FLOW OF EXHAUST AND AIR INTAKE TO DISSIPATE THE HEAT GENERATED BY THE VACUTECH EQUIPMENT. IF ADDITIONAL EQUIPMENT IS INSTALLED IN THE EQUIPMENT ROOM (AIR COMPRESSORS, ELECTRICAL PANELS, TUNNEL CONTROLS, ETC.) PLEASE CONSULT YOUR HVAC DESIGN ENGINEER FOR PROPER TEMPERATURE CONTROL DESIGN OF YOUR EQUIPMENT ROOM. OPERATING TEMPERATURES ABOVE 104 °F (TYPICAL MAXIMUM ENVIRONMENTAL TEMPERATURE FOR ELECTRICAL EQUIPMENT) WILL SHORTEN THE LIFE OF THE VACUUM EQUIPMENT AND MAY INVALIDATE THE VACUTECH LLC WARRANTY.

THE VACUUM TURBINE MUST BE EXHAUSTED OUTSIDE WITH METALLIC PIPE NO SMALLER THAN THE DIAMETER OF THE EXHAUST OUTLET OF THE TURBINE. THE EXHAUST PIPE OPENING MUST BE PROTECTED FROM ELEMENTS. IF EXHAUST DISTANCE IS GREATER THAN 20 FEET USE ONE PIPE SIZE LARGER AFTER 10 FEET OF RUN (I.E. FOR A 20-FOOT RUN OF 8" EXHAUST, USE 8" FOR FIRST 10 FEET AND 10" FOR REMAINING 10 FEET OF THE OVERALL 20-FOOT RUN).

FOR EQUIPMENT ROOMS WITH MULTIPLE TURBINE SETUPS, ADD THE CFM REQUIREMENT PER TURBINE TO DETERMINE TOTAL CFM REQUIREMENT FOR THE EQUIPMENT ROOM. THIS ASSUMES EQUIPMENT ROOM DIMENSIONS 15' X 15' WITH 10' CEILINGS. THIS ASSUMES AN OUTSIDE AIR TEMPERATURE OF 90°F AND A MAXIMUM ROOM TEMPERATURE OF 104°F (NEMA CLASS F INSULATION RATING, MAXIMUM TEMPERATURE) AND DOES NOT ACCOUNT FOR RADIANT HEATING FROM THE ENVIRONMENT OR ANY OTHER EQUIPMENT INSTALLED IN EQUIPMENT ROOM. THESE VALUES ARE ESTIMATES ONLY AND DEPEND ON EQUIPMENT ROOM DIMENSIONS, GEOGRAPHIC LOCATION AND EQUIPMENT SETUP. TO CALCULATE YOUR SPECIFIC CONFIGURATION AND SITE CONDITIONS PLEASE CONSULT YOUR MECHANICAL HVAC DESIGNER AND ASHRAE STANDARDS.

1 ENCLOSURE - TYPICAL REQUIREMENTS

**VACUTECH**  
 AN **NCS** COMPANY  
 1350 HI-TECH DRIVE  
 SHERIDAN, WY 82801  
 PHONE: (307) 675-1982  
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 WEB: www.vacutechllc.com

**COBBLESTONE C82**  
 9572 TWENTY MILE ROAD  
 PARKER, COLORADO 80134

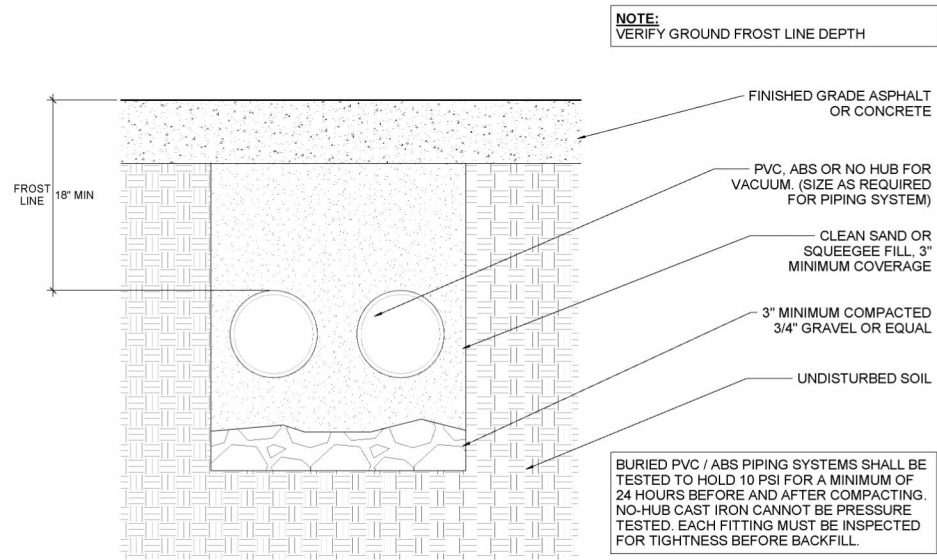
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**ENCLOSURE DETAIL**

Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

V711

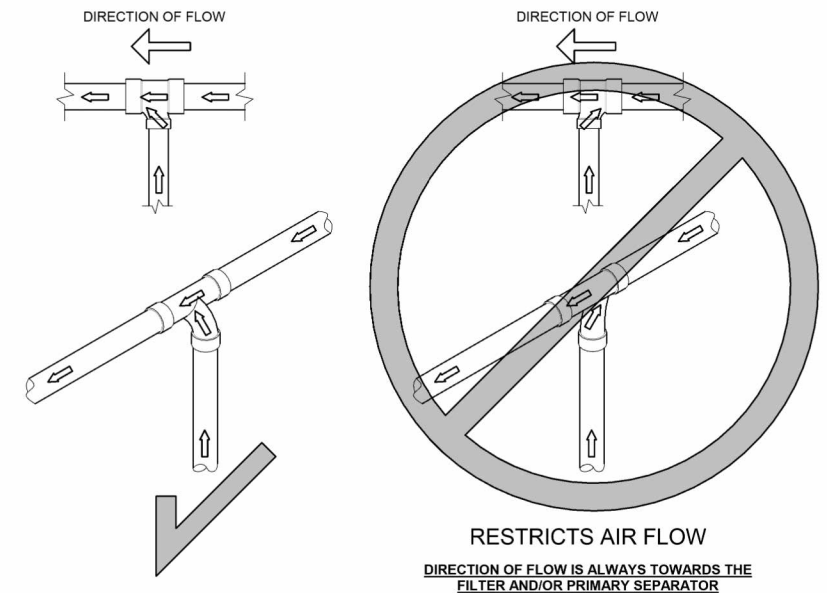
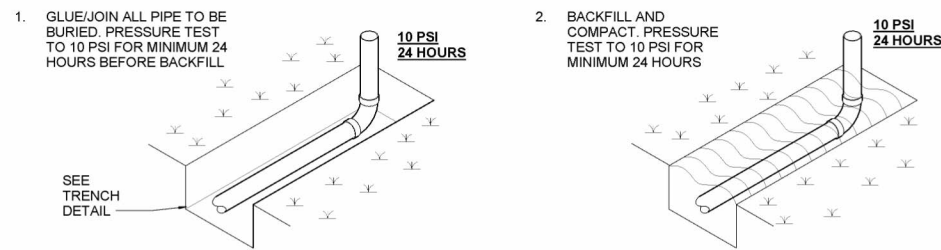
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**NOTE:**  
VERIFY GROUND FROST LINE DEPTH

BURIED PVC / ABS PIPING SYSTEMS SHALL BE TESTED TO HOLD 10 PSI FOR A MINIMUM OF 24 HOURS BEFORE AND AFTER COMPACTING. NO-HUB CAST IRON CANNOT BE PRESSURE TESTED. EACH FITTING MUST BE INSPECTED FOR TIGHTNESS BEFORE BACKFILL.

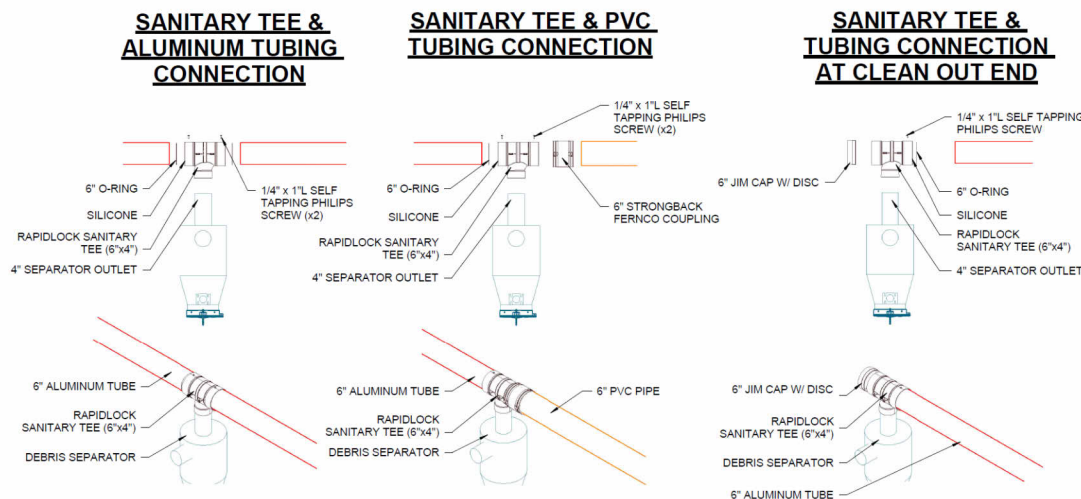
- PIPE NOTES:**
- FIELD VERIFY ALL DIMENSIONS
  - SUPPORT SCHEDULE 40 PVC OVERHEAD DRY/WET VACUUM PIPE EVERY 6' MAXIMUM; USE UNISTRUT & CLAMP OR OTHER SUPPORT **(PROVIDED BY OTHERS)**
  - RUN COMPRESSED AIR TO AIR COMPRESSOR LOCATION **(BY OTHERS)**
  - COMPRESSED AIR RECOMMENDED WORKING PRESSURE IS 75PSIG AND 10SCFM AT INTERFACE
  - WALL PENETRATION: CORE DRILLING MAY BE REQUIRED FIELD VERIFY HEIGHT
  - REFER TO SHEET V721 FOR PIPE ASSEMBLY CUTSHEETS
  - ALL FITTINGS TO BE 'DWV'



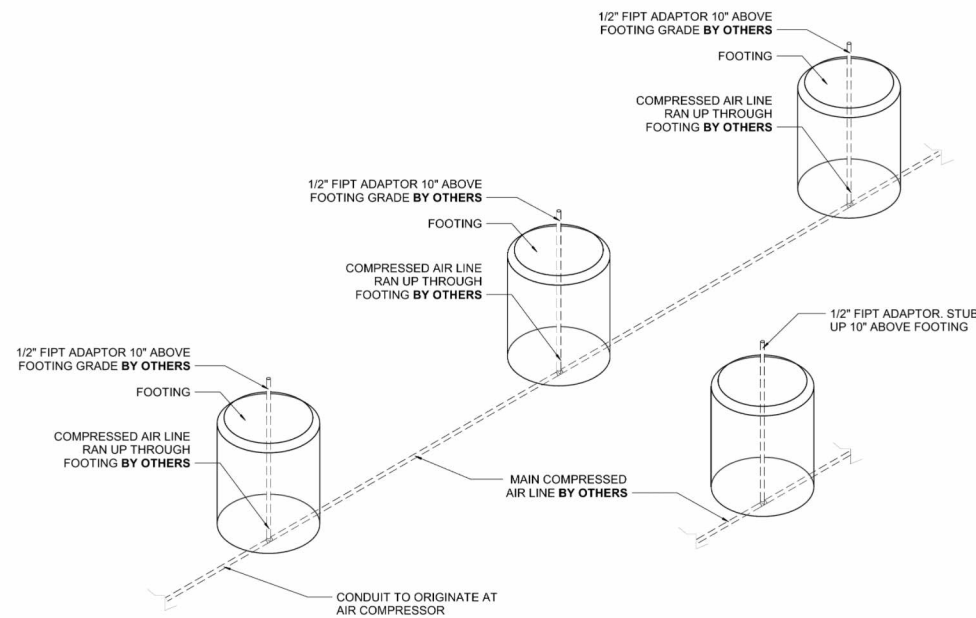
1 TRENCH - DUAL LINE

2 TRENCH - PRESSURE TEST

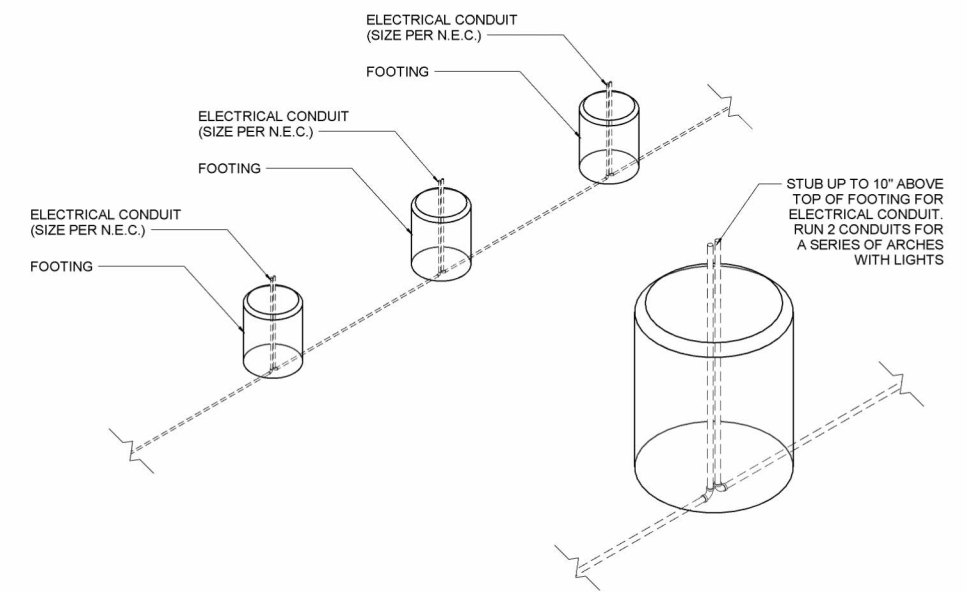
3 PIPE - PIPE FLOW



4 PIPE - 6x4 TEE KIT



5 TRENCH - AIR LINE STUB-UP



6 TRENCH - CONDUIT STUB-UP

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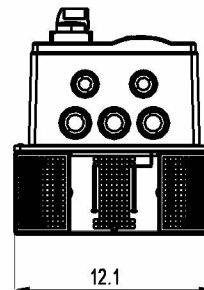
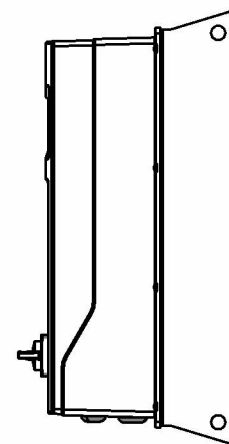
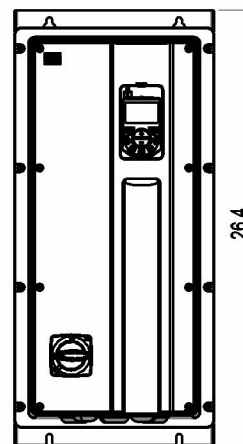
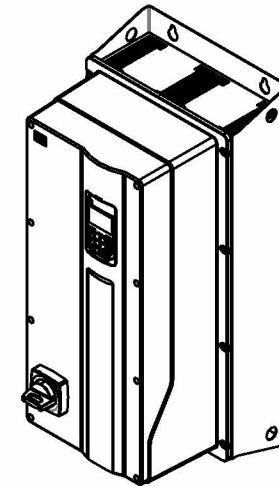
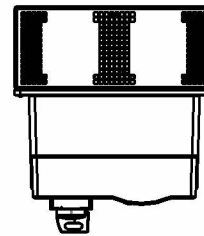
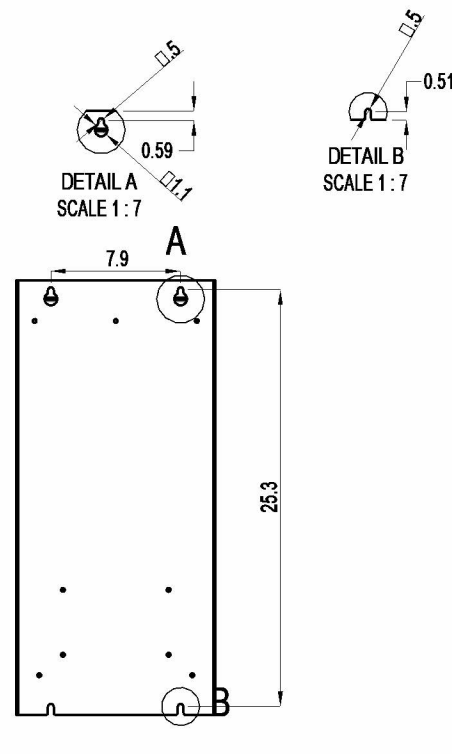
**COBBLESTONE C82**  
9572 TWENTY MILE ROAD  
PARKER, COLORADO 80134

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PIPE DETAILS	
Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V721**

Variable Frequency Drive (VFD) - 40 HP , 480V - NEMA 12					
Voltage	Power	Height	Width	Depth	Weight
480V	40 HP	26.4	12.1	13.7	66.2



OPERATING CONDITIONS	
MIN. TEMPERATURE:	14 °F [-10 °C]
MAX. TEMPERATURE:	104 °F [40 °C]
HUMIDITY:	5% TO 95% NON-CONDENSING

**WEG ELECTRIC NEMA 12 VARIABLE FREQUENCY DRIVE (VFD)**

**AVOID:**

- DIRECT EXPOSURE TO SUNLIGHT, RAIN, HIGH HUMIDITY, OR SEA-AIR
- INFLAMMABLE OR CORROSIVE GASES OR LIQUIDS
- EXCESS VIBRATION
- DUST, METALLIC PARTICLES, AND OIL MIST

**WARRANTY INFORMATION**

VFD NOT TO BE OPERATED IN CONDITIONS OUTSIDE OF THOSE SPECIFIED IN 'OPERATING CONDITIONS'.

EACH VFD MUST BE WIRED FROM THE MAIN DISTRIBUTION PANEL IN SEPARATE CONDUIT (SIZED PER NEC) TO EACH VFD AND FROM EACH VFD TO PRODUCER MOTOR.

**VFD NOTES**

**'VFD' OR 'VARIABLE FREQUENCY DRIVE' IS AN OPTIONAL STARTER CONTROL.**

- VFD MUST BE INSTALLED IN A CLEAN, DRY, DUST-FREE, OIL-FREE & MOISTURE-FREE CLIMATE CONTROLLED ENVIRONMENT NOT TO EXCEED 104 DEGREES FAHRENHEIT.
- EXTERIOR RAIN-TIGHT NEMA 12 VFD ENCLOSURES ARE AVAILABLE FOR ADDITIONAL EXPENSE.
- CONDUIT FOR TRANSDUCER MUST BE 8" AWAY FROM ALL OTHER WIRING/CONDUIT AND MUST BE A HOME RUN (NO SPLICING) THAT SHALL NOT EXCEED 100'.
- ALL CONDUIT RUNS FOR VACUUM SYSTEM VFD(s) & MOTOR(s) MUST BE IN A SEPARATE CONDUIT A MINIMUM OF 12" APART.
- WHEN USING PVC CONDUIT, HIGH VOLTAGE LINE & LOAD WIRE MUST BE SHIELDED.

**CARWASH EQUIPMENT ROOM IS NOT RECOMMENDED FOR VFD INSTALLATION, AND WILL AFFECT PRODUCT WARRANTY.**

**VFD MUST BE INSTALLED IN A DRY, CLEAN, OIL FREE, DUST FREE, MOISTURE FREE, CLIMATE CONTROLLED ENVIRONMENT**

① VFD - 1B001124 - NEMA 12 - 40 HP 460V

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**COBBLESTONE C82**

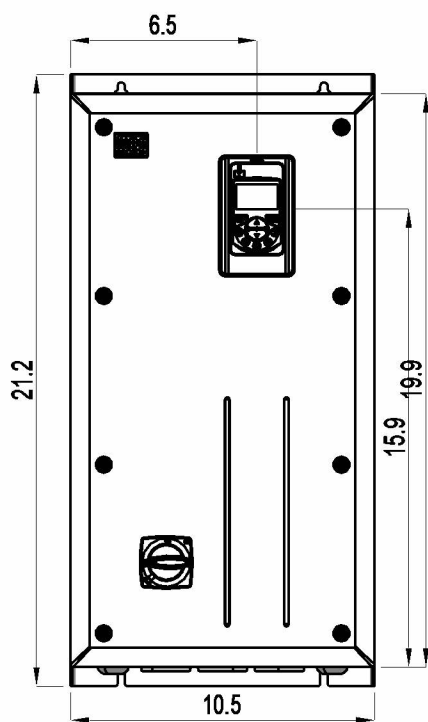
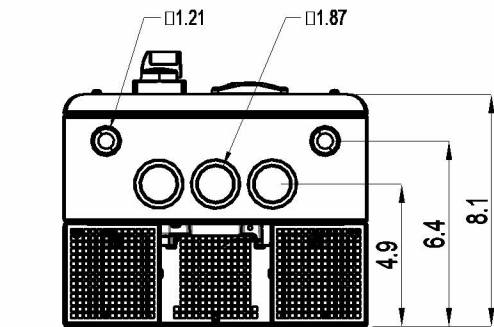
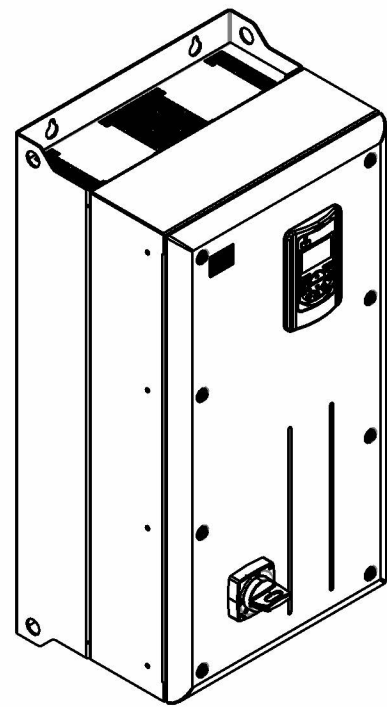
**9572 TWENTY MILE ROAD  
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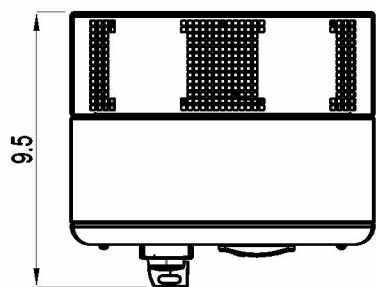
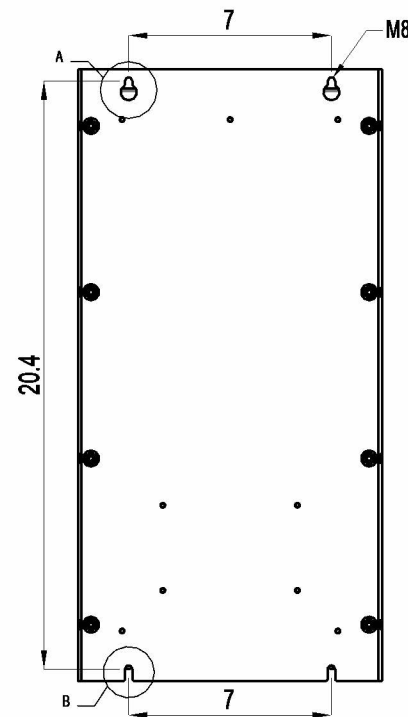
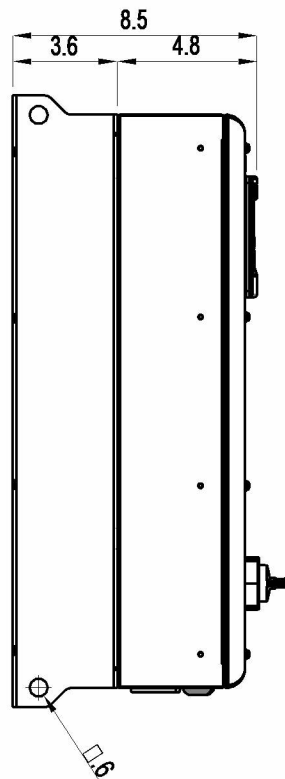
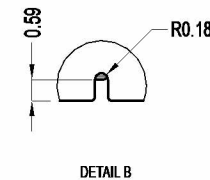
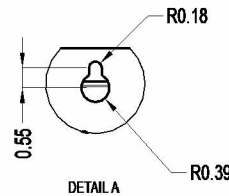
**VFD DETAILS A**

Project Number	117572
Date	6/5/23
Drawn By	FM
Checked By	TD

**V731**



Variable Frequency Drive (VFD) - 75 HP, 480V - NEMA 12					
Voltage	Power	Height	Width	Depth	Weight
480V	75 HP	29.7	14.8	13.3	108



OPERATING CONDITIONS	
MIN. TEMPERATURE:	14 °F [-10 °C]
MAX. TEMPERATURE:	104 °F [40 °C]
HUMIDITY:	5% TO 95% NON-CONDENSING

**VFD NOTES**

**'VFD' OR 'VARIABLE FREQUENCY DRIVE' IS AN OPTIONAL STARTER CONTROL.**

- VFD MUST BE INSTALLED IN A CLEAN, DRY, DUST-FREE, OIL-FREE & MOISTURE-FREE CLIMATE CONTROLLED ENVIRONMENT NOT TO EXCEED 104 DEGREES FAHRENHEIT.
- EXTERIOR RAIN-TIGHT NEMA 12 VFD ENCLOSURES ARE AVAILABLE FOR ADDITIONAL EXPENSE.
- CONDUIT FOR TRANSDUCER MUST BE 8" AWAY FROM ALL OTHER WIRING/CONDUIT AND MUST BE A HOME RUN (NO SPLICING) THAT SHALL NOT EXCEED 100'.
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- WHEN USING PVC CONDUIT, HIGH VOLTAGE LINE & LOAD WIRE MUST BE SHIELDED.

**CARWASH EQUIPMENT ROOM IS NOT RECOMMENDED FOR VFD INSTALLATION, AND WILL AFFECT PRODUCT WARRANTY.**

**VFD MUST BE INSTALLED IN A DRY, CLEAN, OIL FREE, DUST FREE, MOISTURE FREE, CLIMATE CONTROLLED ENVIRONMENT**

**WEG ELECTRIC NEMA 12 VARIABLE FREQUENCY DRIVE (VFD)**

**AVOID:**

- DIRECT EXPOSURE TO SUNLIGHT, RAIN, HIGH HUMIDITY, OR SEA-AIR
- INFLAMMABLE OR CORROSIVE GASES OR LIQUIDS
- EXCESS VIBRATION
- DUST, METALLIC PARTICLES, AND OIL MIST

**WARRANTY INFORMATION**

VFD NOT TO BE OPERATED IN CONDITIONS OUTSIDE OF THOSE SPECIFIED IN 'OPERATING CONDITIONS'.

EACH VFD MUST BE WIRED FROM THE MAIN DISTRIBUTION PANEL IN SEPARATE CONDUIT (SIZED PER NEC) TO EACH VFD AND FROM EACH VFD TO PRODUCER MOTOR.

① VFD - 1B001127 - NEMA 12 - 75 HP 460V

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**VFD DETAILS B & C**

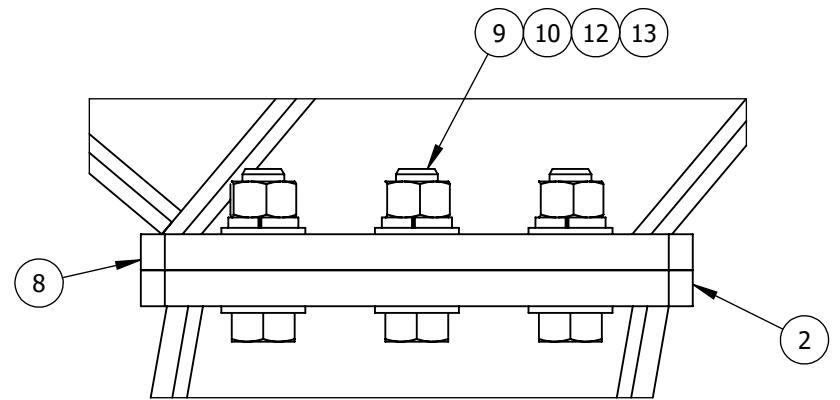
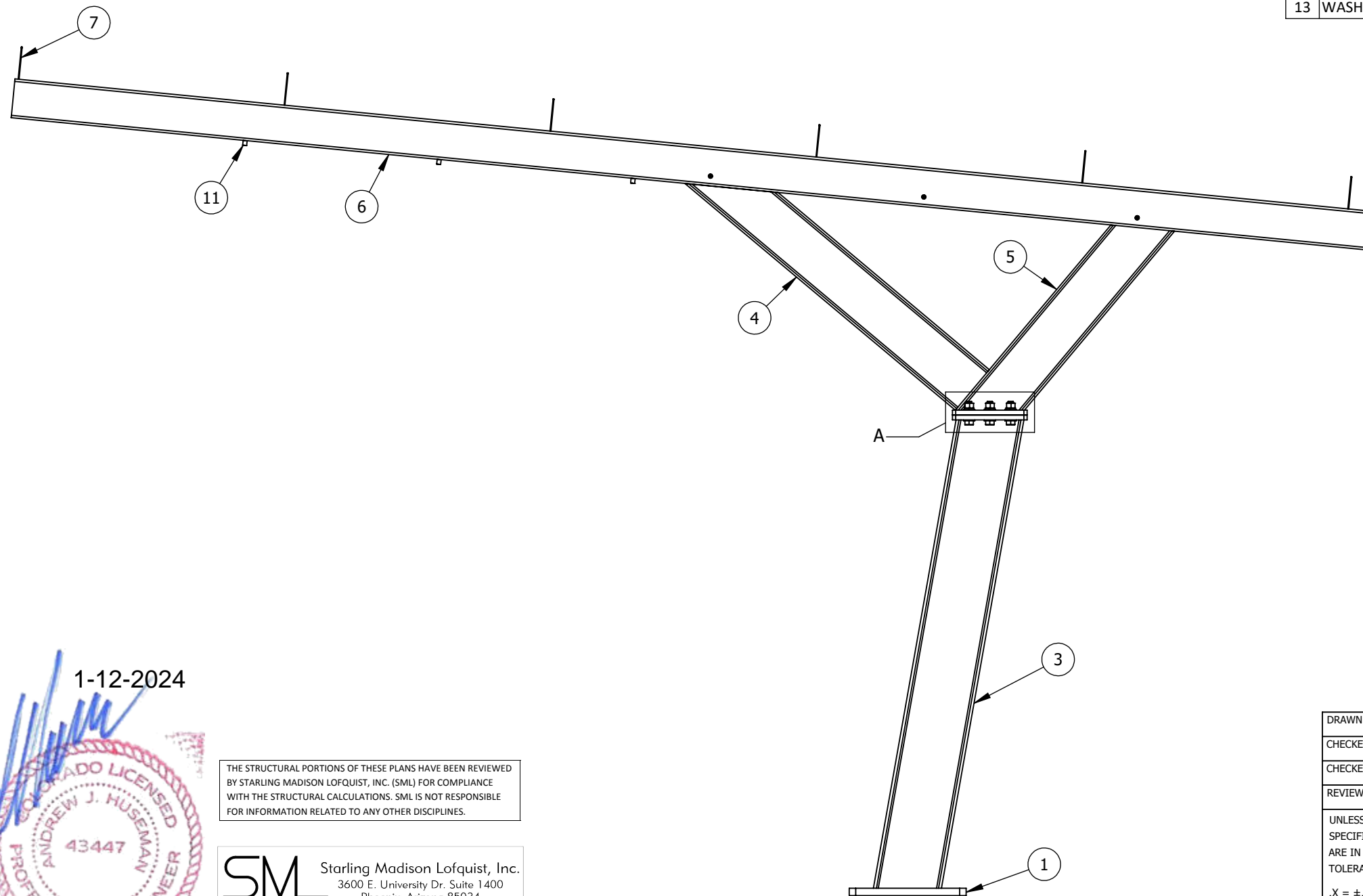
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Checked By	TD

**V732**

# FOR ARCHES #1, 6, 7, 11, 12, 16, 17, 22, 23, 30, 31, 33

## PARTS LIST

	DESCRIPTION	MATERIAL	QTY
1	PLATE, 1-1/8 X 18 X 18 RIVAL BASE PLATE (CS)	CS A36	1
2	PLATE, 3/4" RIVAL POST FLANGE TOP (CS)	CS A36	1
3	W BEAM, 10" X 26 CUT TO 75", RIVAL ARCH ANGLE CUT POST (CS)	CS A36	1
4	MACHINED, W BEAM, 8" X 18 CUT TO 54-5/16", RIVAL ARCH ARM FRONT (CS)	CS A992	1
5	MACHINED, W BEAM, 8" X 18 CUT TO 42 13/16", RIVAL ARCH ARM BACK, SEP HOLES (CS)	CS A36	1
6	SQUARE TUBE, 6" X 3/16" X 210", RIVAL ARCH STRAIGHT ARM WITH ACCESS POINTS (CS)	CS A500B	1
7	SHEET, 10 GA RIVAL ARCH PURLIN ATTACHMENT (CS)	CS A1008	6
8	PLATE, 3/4" RIVAL POST FLANGE TOP (CS)	CS A36	1
9	HEX BOLT, 7/8"-9 UNC X 3" LG. ZN GR8	Zn/Y GR 8	6
10	HEX NUT, 7/8-9 UNC, Zn/Y GR 8	Zn/Y GR 8	6
11	THREADED WELD BUNG, 1/4-20 UNC X .750" LG. X 5/8" OD.	CS A36	6
12	WASHER, FLAT, SAE, 7/8" X 1.750" OD X .134" THK, Zn/Y GR 8	Zn/Y GR 8	12
13	WASHER, SPLIT LOCK, 7/8", Zn/Y GR 8	Zn/Y GR 8	6



DETAIL A

1-12-2024



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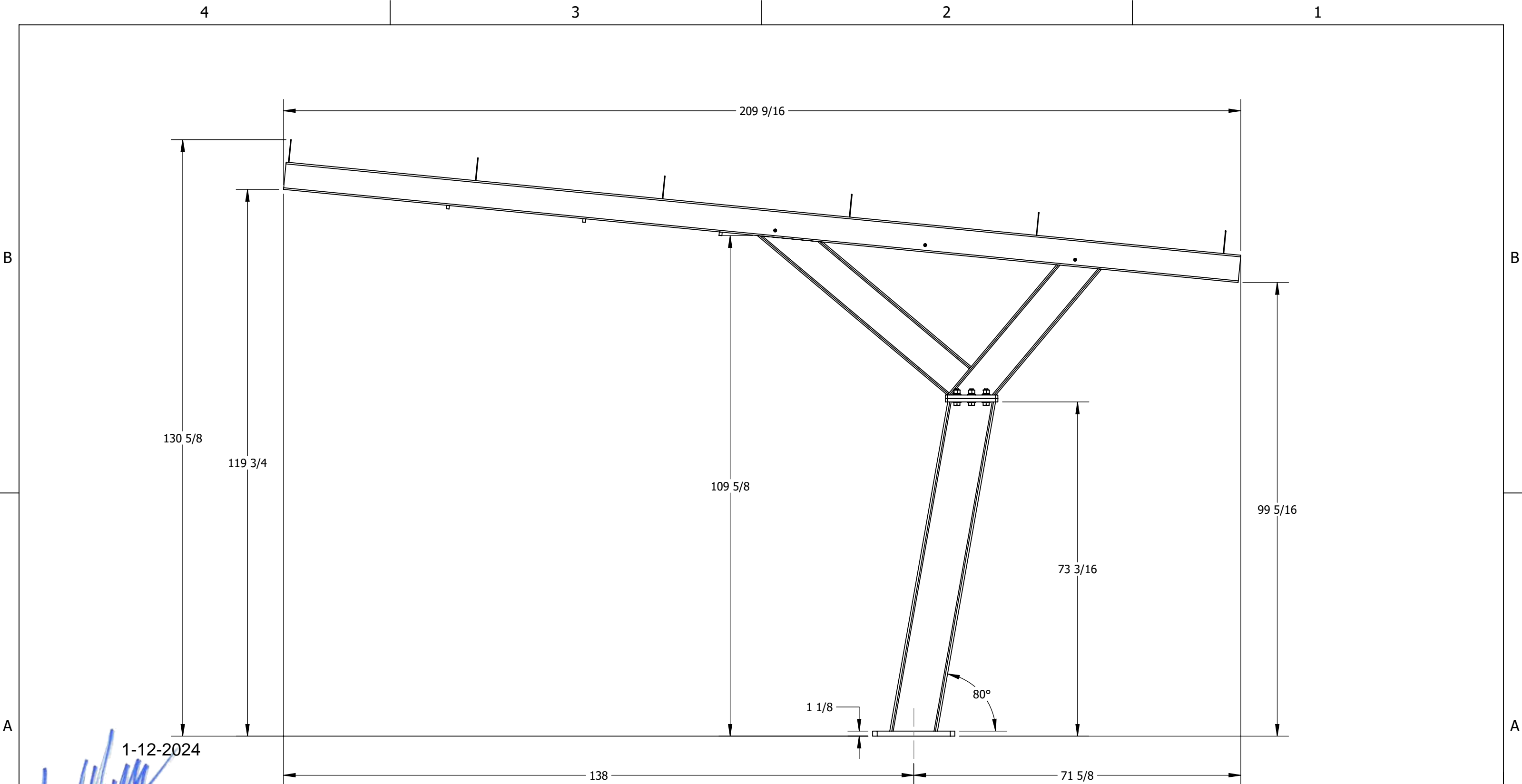
DRAWN BY	AMV	01/09/2024
CHECKED BY		
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REVIEWED BY		

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 .X = ±.1  
 .XX = ±.01  
 .XXX = ±.005  
 FRACTION = ±1/16  
 ANGULAR = ±.5°

CLIENT NAME	<b>COBBLESTONE</b>		
CLIENT ADDRESS	<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>		
SIZE	<b>B</b>	DRAWING NO.	<b>117572-ENG1</b>
SCALE:	NTS	WEIGHT:	676.5985 LBS
			SHEET 1 OF 5



1-12-2024

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*Consulting Structural and Forensic Engineers*

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CLIENT ADDRESS			
		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE	DRAWING NO.	REV
	<b>B</b>	<b>117572-ENG1</b>	<b>2</b>
SCALE:	NTS	WEIGHT: 676.5985 LBS	SHEET 2 OF 5

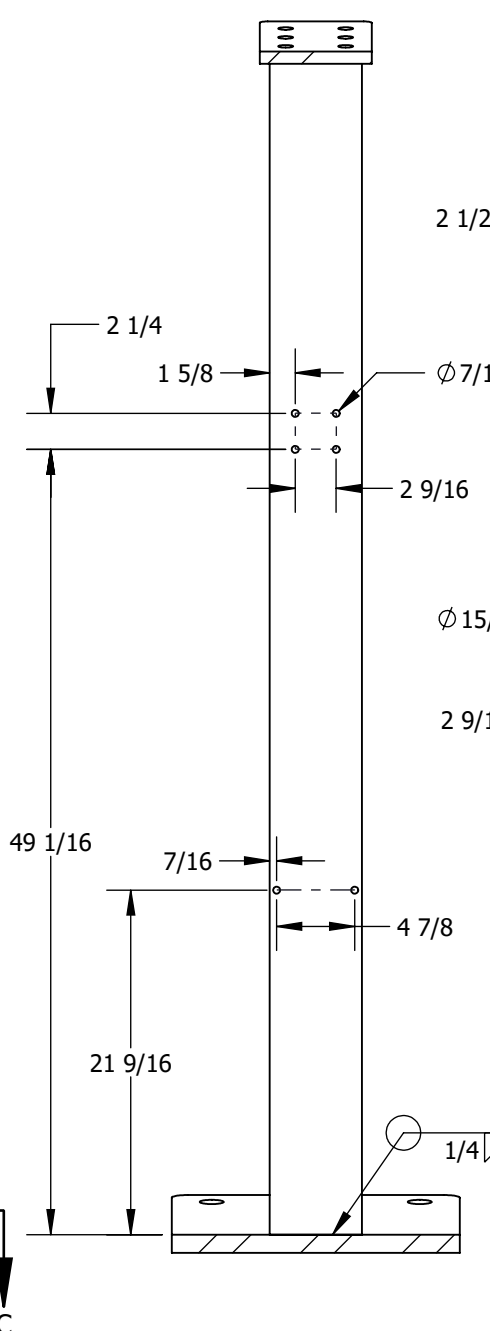
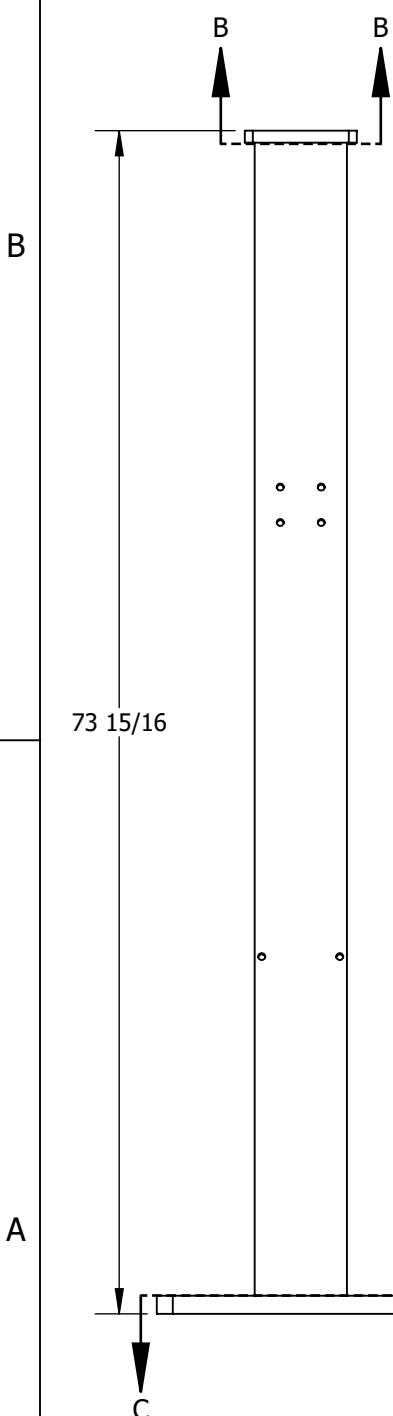
Exp. 10/31/2025

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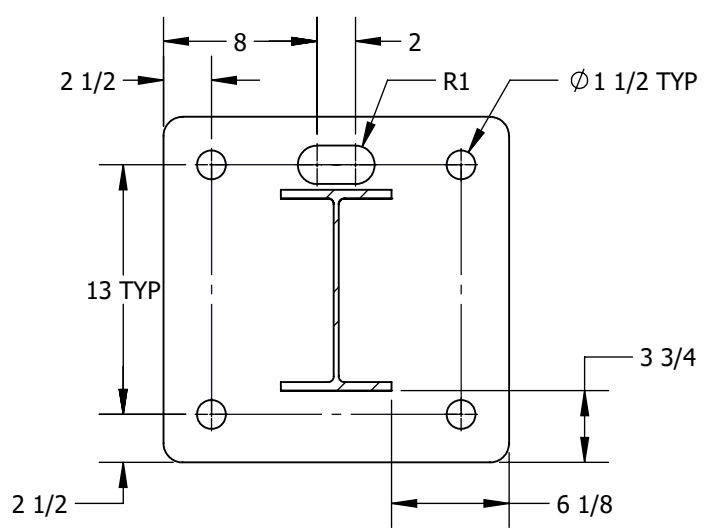
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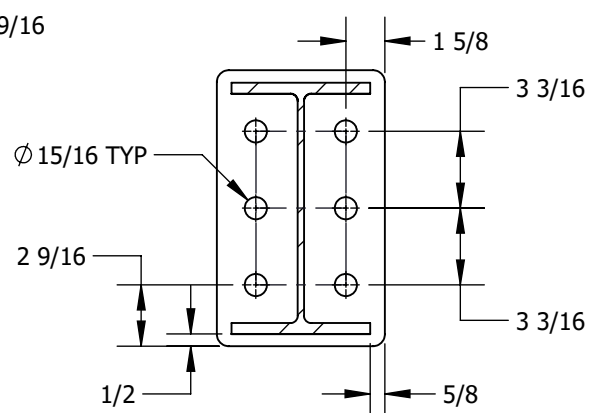
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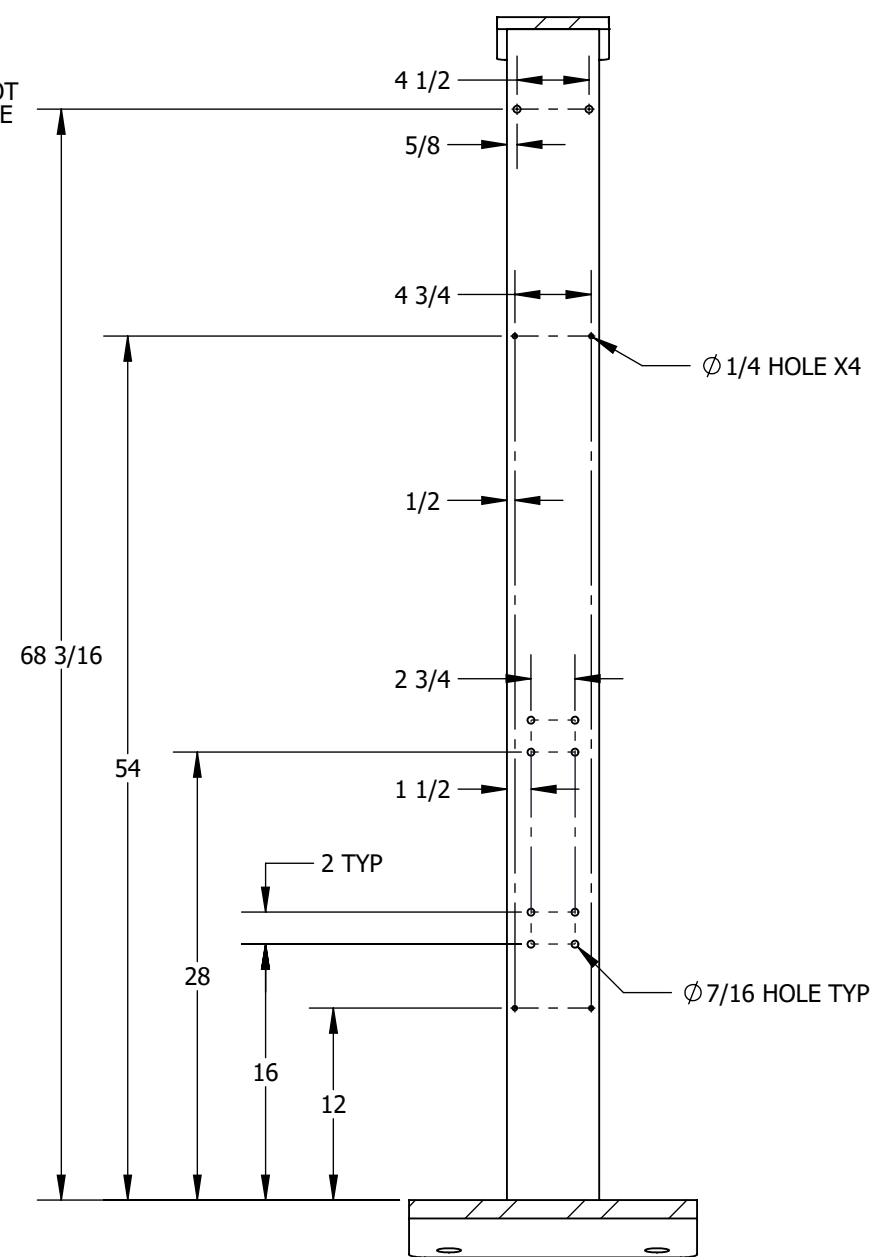
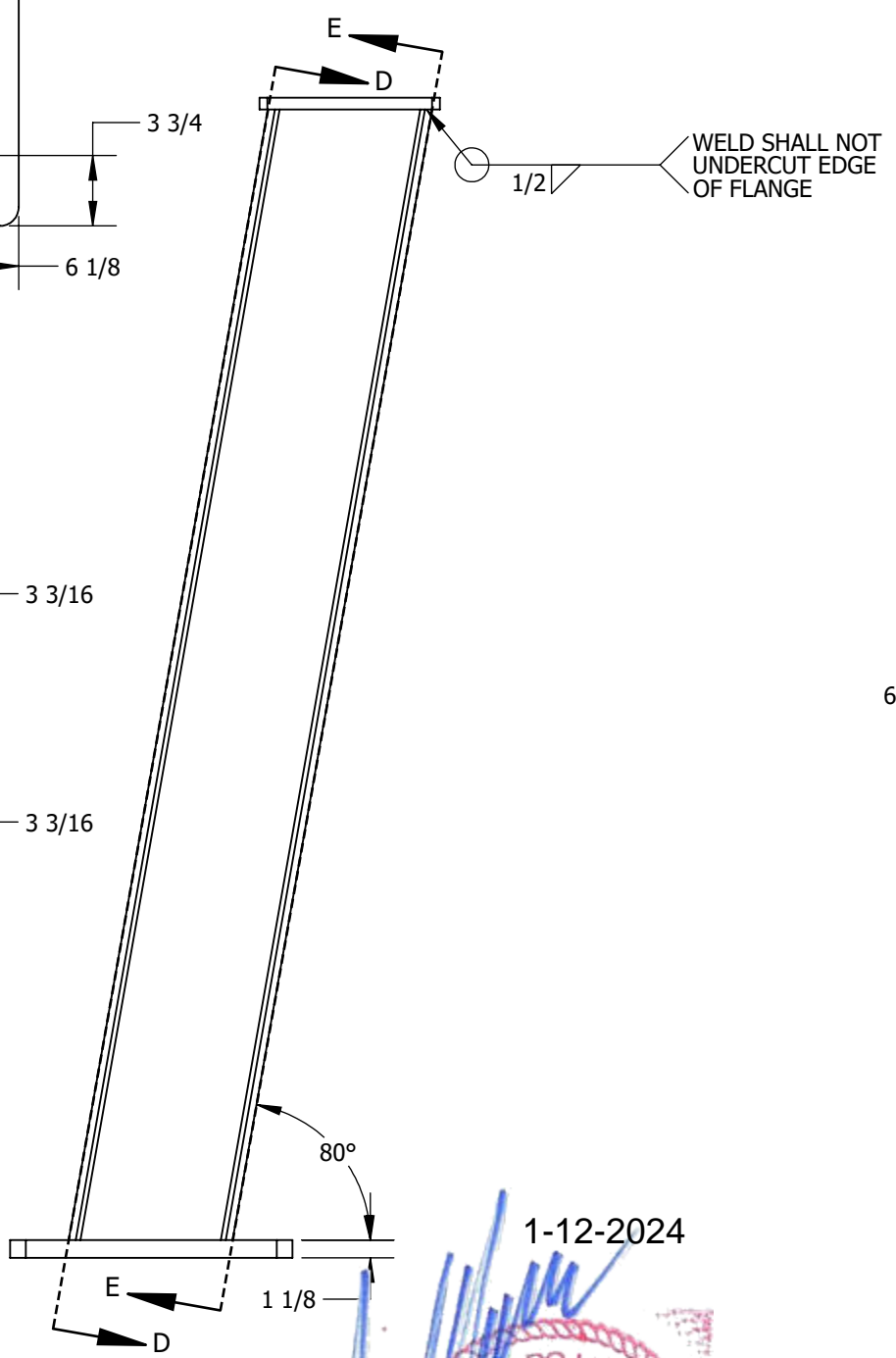
SECTION D-D



SECTION C-C



SECTION B-B



SECTION E-E

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1-12-2024  
 ANDREW J. HUSEMAN  
 COLORADO LICENSED PROFESSIONAL ENGINEER  
 43447  
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CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE	DRAWING NO.	REV
	<b>B</b>	<b>117572-ENG1</b>	<b>2</b>
SCALE:	NTS	WEIGHT: 676.5985 LBS	SHEET 3 OF 5

4

3

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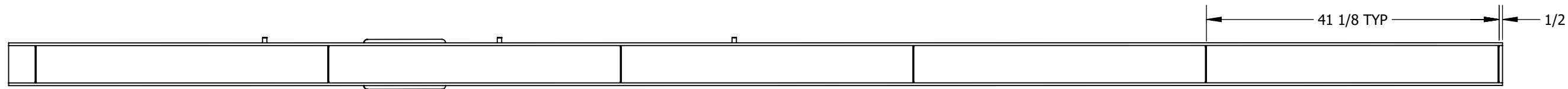
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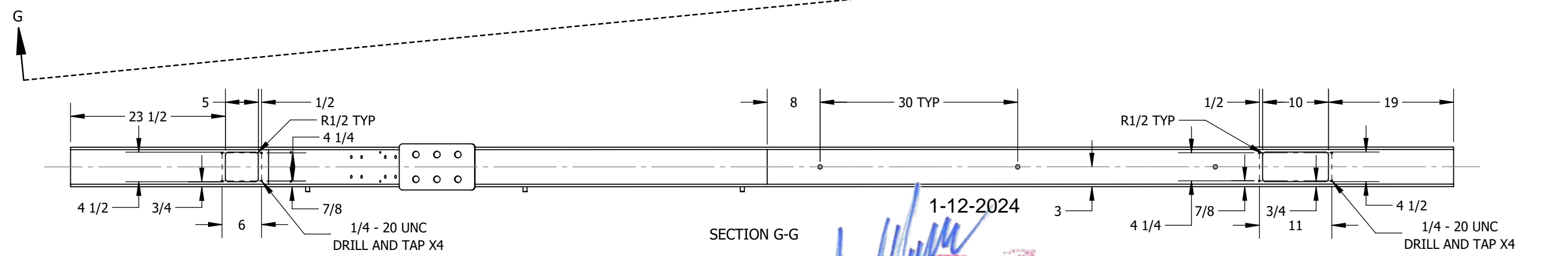
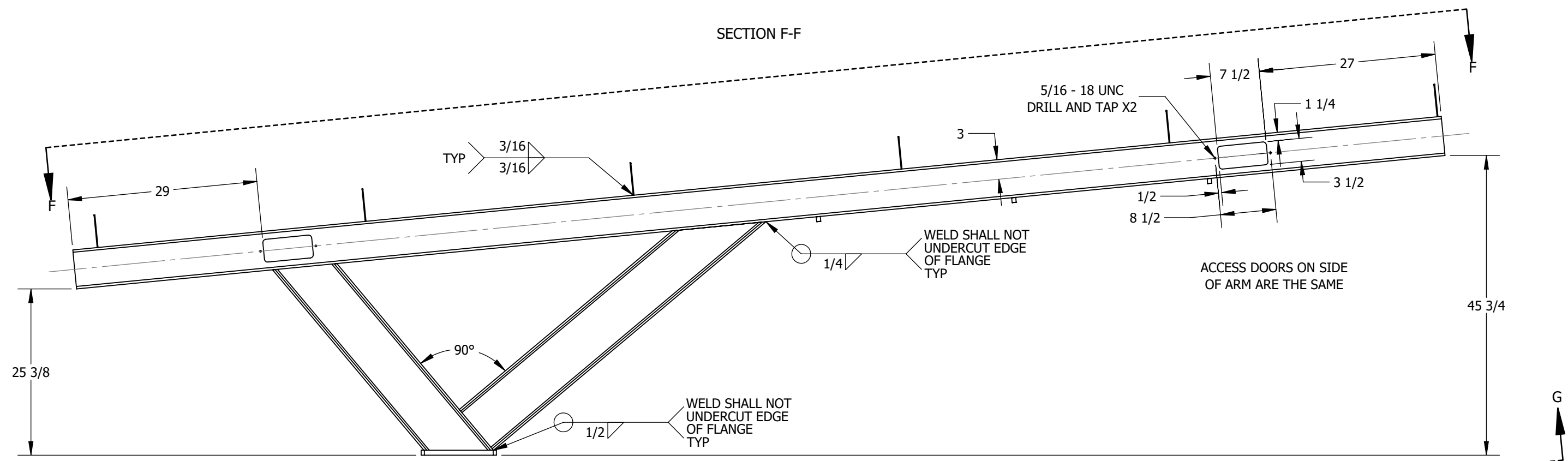
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SECTION F-F



SECTION G-G

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1-12-2024

PROFESSIONAL ENGINEER  
 ANDREW J. HUSEMAN  
 43447  
 COLORADO LICENSED

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CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE <b>B</b>	DRAWING NO. <b>117572-ENG1</b>	REV <b>2</b>
SCALE: NTS	WEIGHT: 676.5985 LBS	SHEET 4 OF 5	

4

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Exp. 10/31/2025

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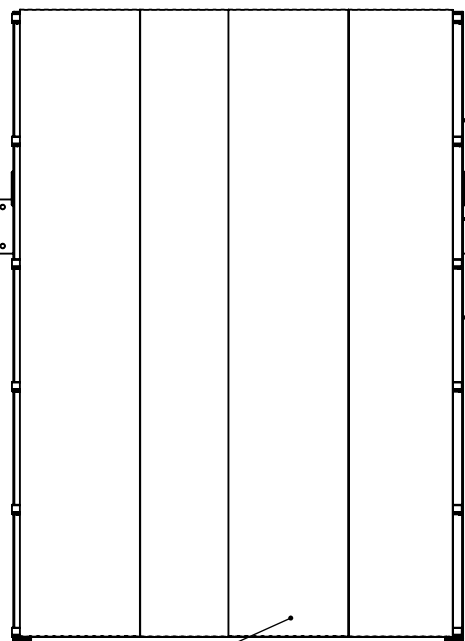
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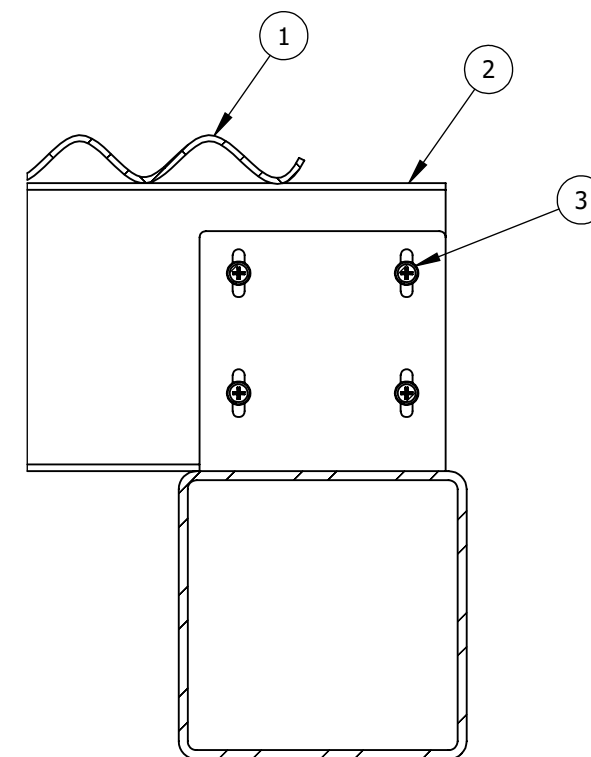
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### PARTS LIST

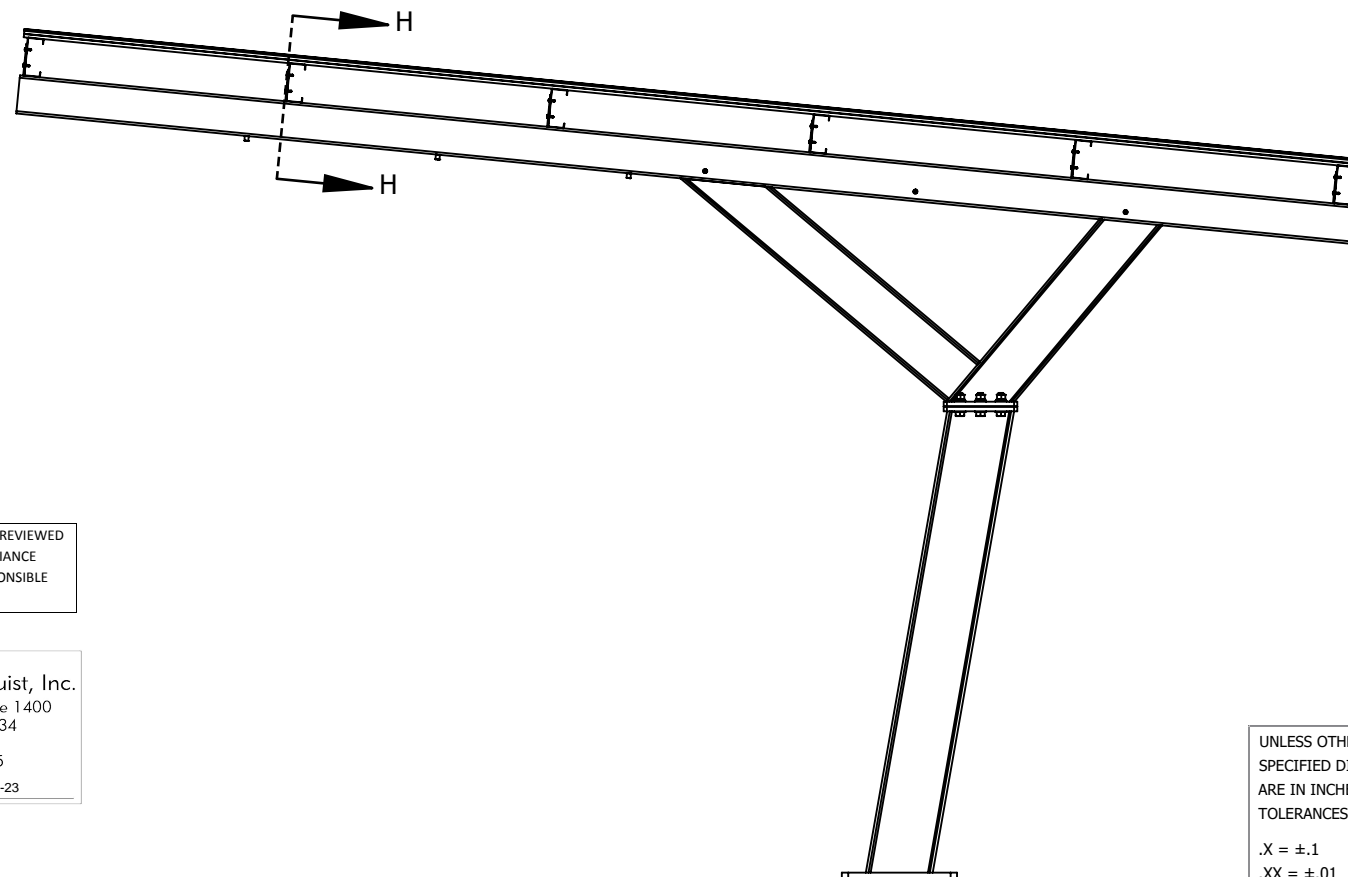
	DESCRIPTION	MATERIAL	QTY
1	CORRUGATED STEEL PANEL, BERRIDGE DEEP - DECK PANEL - 22 GA (1.5" TALL)	STEEL	5
2	PURLIN, CEE, 6" X 2 1/2" X 14 GA WALL CUT TO 173"	CS A1008	6
3	SCREW, 1/4" X 1/2", SELF TAPPING PAN HEAD, #3 DRIVE PHILLPS (SS)	SS 18-8	120



ATTACH CORRUGATED STEEL TO PURLINS USING # 12 STAINLESS HWH DRILL SCREWS (10) PER 36" PANEL, PER PURLIN, EQUALLY SPACED, ATTACH W/ 2 SCREWS AT EACH LOW FLUTE & SIDELAP W/ #12 STAINLESS DRILL SCREWS CONNECTIONS AT 12" O.C. WITH NEOPRENE WASHERS



SECTION H-H  
TYPICAL PURLIN ATTACHMENT



1-12-2024  
  
 Exp. 10/31/2025

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GENERAL NOTES:  
 1. CORRUGATED STEEL PANELS TO BE INSTALLED PERPENDICULAR TO PURLINS USING STAINLESS STEEL SELF-DRILLING/SELF TAP SCREWS

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 .XXX = ±.005  
 FRACTION = ±1/16  
 ANGULAR = ±.5°

CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE <b>B</b>	DRAWING NO. <b>117572-ENG1</b>	REV <b>2</b>
SCALE: NTS	WEIGHT: 676.5985 LBS	SHEET 5 OF 5	

4

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2

1

B

B

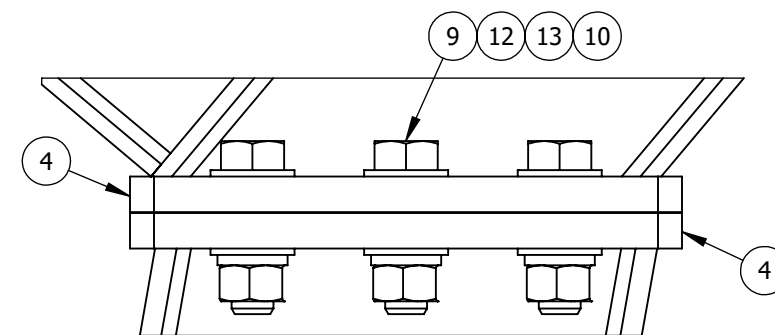
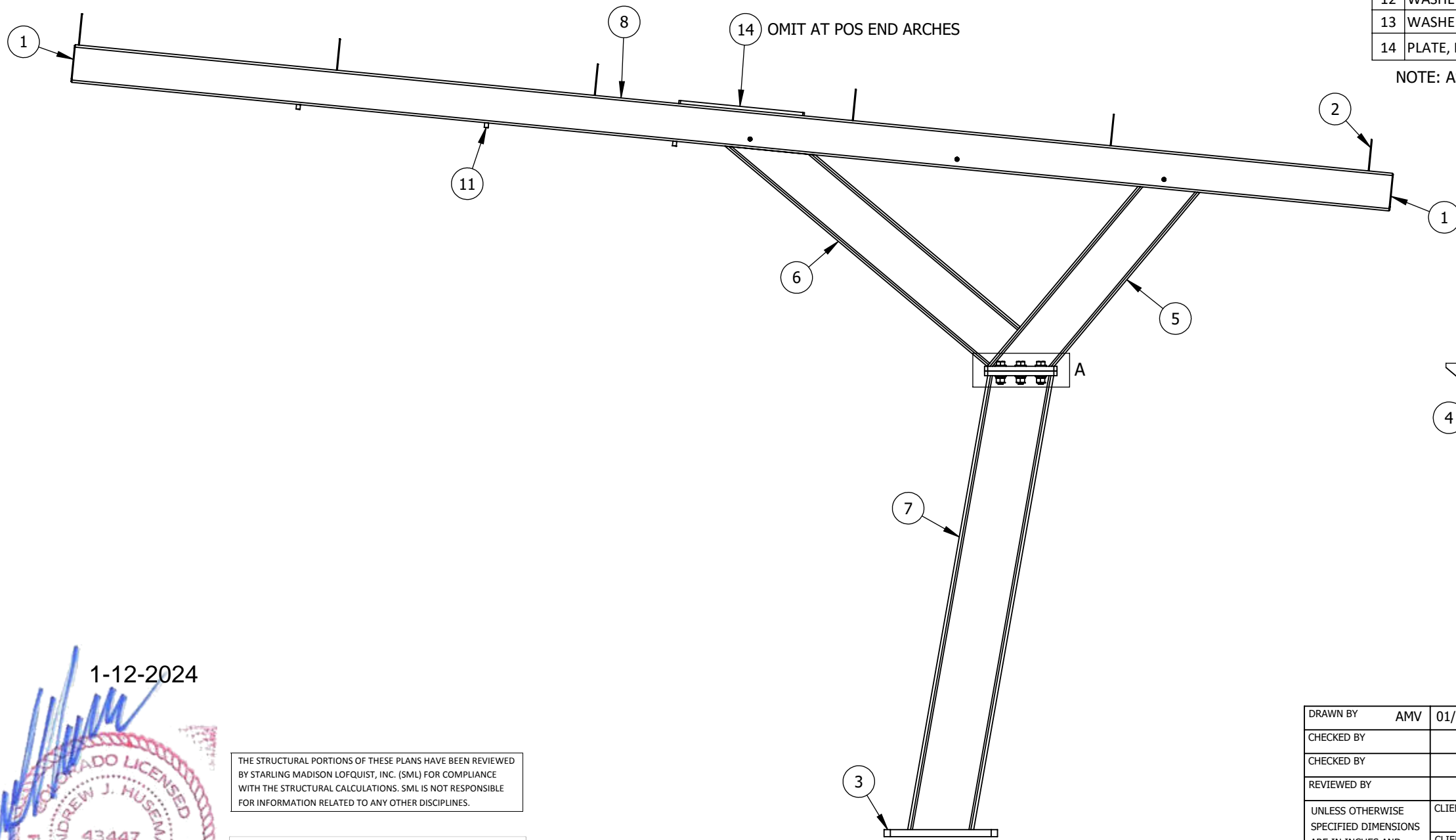
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PARTS LIST

	DESCRIPTION	MATERIAL	QTY
1	SHEET, 10 GA X 5.75" SQ RIVAL ARCH ARM ENDS (CS)	CS A1008	2
2	SHEET, 10 GA RIVAL ARCH PURLIN ATTACHMENT (CS)	CS A1008	6
3	PLATE, 1-1/8 X 18 X 18 RIVAL BASE PLATE (CS)	CS A36	1
4	PLATE, 3/4" RIVAL POST FLANGE TOP (CS)	CS A36	2
5	W BEAM, 8" X 18 CUT TO 42 13/16"	CS A992	1
6	W BEAM, 8" X 18 CUT TO 54 5/16"	CS A992	1
7	W BEAM, 10" X 26 CUT TO 75"	CS A992	1
8	SQUARE HSS 6.0 X 6.0 X 0.1875 CUT TO 210"	CS A500B	1
9	HEX BOLT, 7/8"-9 UNC X 3" LG. ZN GR8	Zn/Y GR 8	6
10	HEX NUT, 7/8-9 UNC, Zn/Y GR 8	Zn/Y GR 8	6
11	THREADED WELD BUNG, 1/4-20 UNC X .750" LG. X 5/8" OD.	CS A36	6
12	WASHER, FLAT, SAE, 7/8" X 1.750" OD X .134" THK, Zn/Y GR 8	Zn/Y GR 8	12
13	WASHER, SPLIT LOCK, 7/8", Zn/Y GR 8	Zn/Y GR 8	6
14	PLATE, RECTANGLE, 5" X 20" X 1/2" THICK (CS), RIVAL ARM SUPPORT	A36	1

NOTE: ASTM A500B MATERIAL TO HAVE A MINIMUM YEILD STRENGTH OF 50 KSI.



DETAIL A

1-12-2024

*[Signature]*

PROFESSIONAL ENGINEER  
ANDREW J. HUSEMANN  
43447  
COLORADO LICENSED

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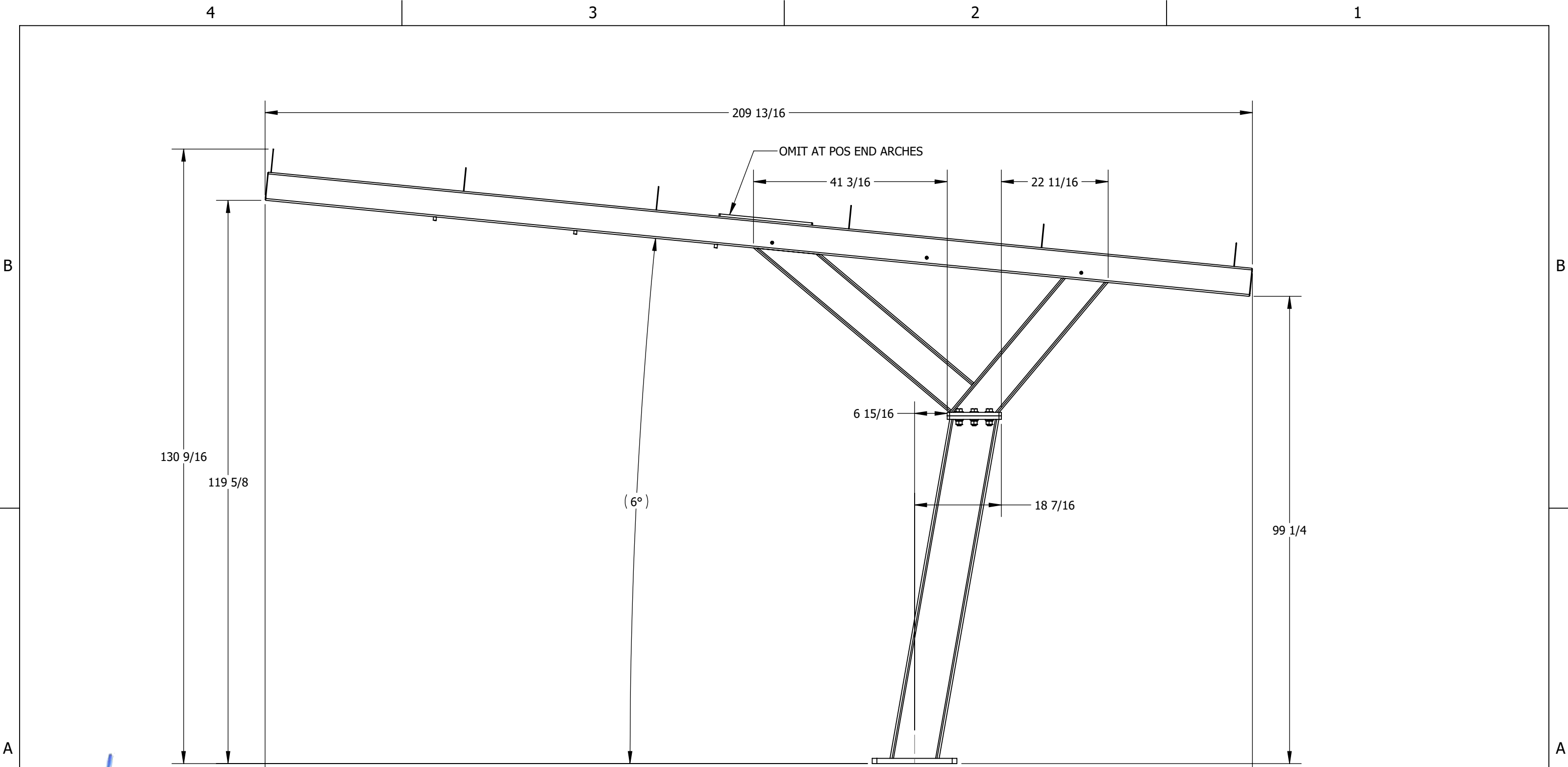
DRAWN BY	AMV	01/09/2024
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REVIEWED BY		

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ANGULAR = ±.5°

CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
SIZE	DRAWING NO.	REV	
<b>B</b>	<b>117572-ENG2</b>	<b>2</b>	
SCALE:	NTS	WEIGHT: 697.7801 LBS	SHEET 1 OF 5



1-12-2024

*[Handwritten signature]*  
**ANDREW J. HUSEMAN**  
 COLORADO LICENSED PROFESSIONAL ENGINEER  
 43447  
 Exp. 10/31/2025

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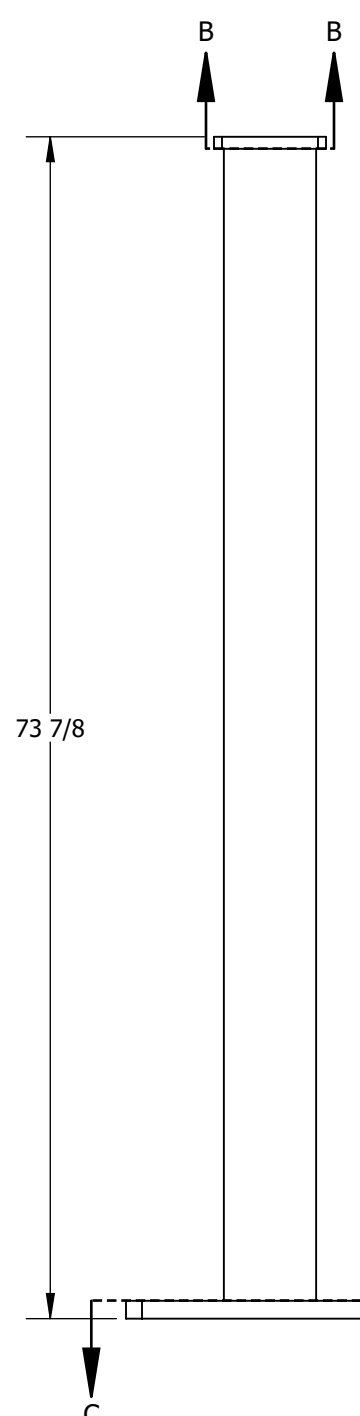
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CLIENT ADDRESS			
		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE	DRAWING NO.	REV
	<b>B</b>	<b>117572-ENG2</b>	<b>2</b>
SCALE:	NTS	WEIGHT: 697.7801 LBS	SHEET 2 OF 5

4

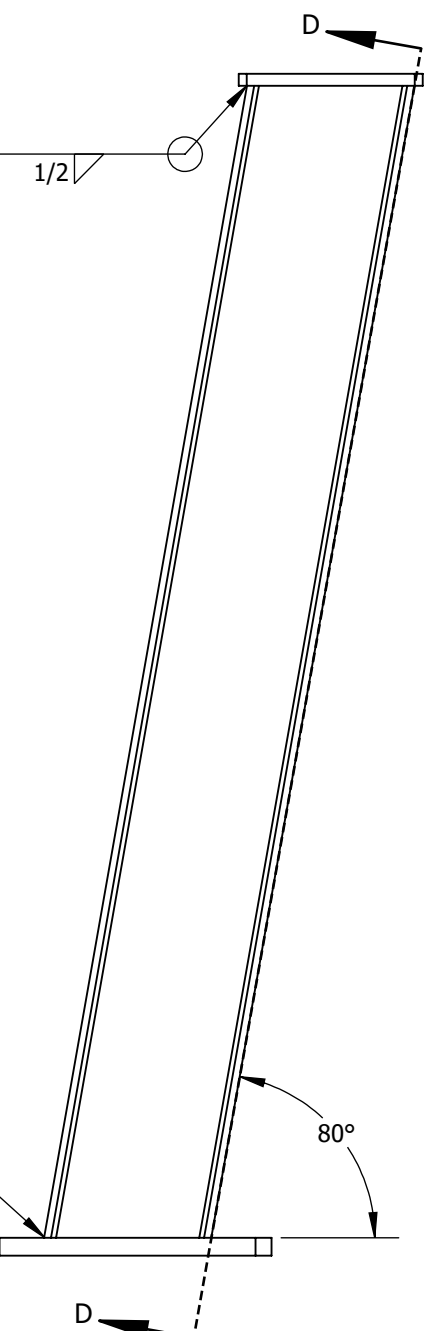
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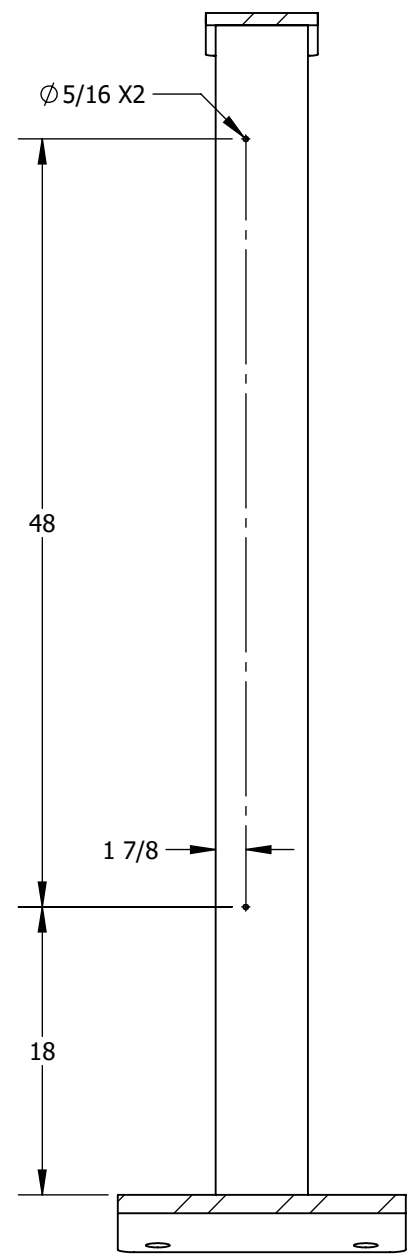
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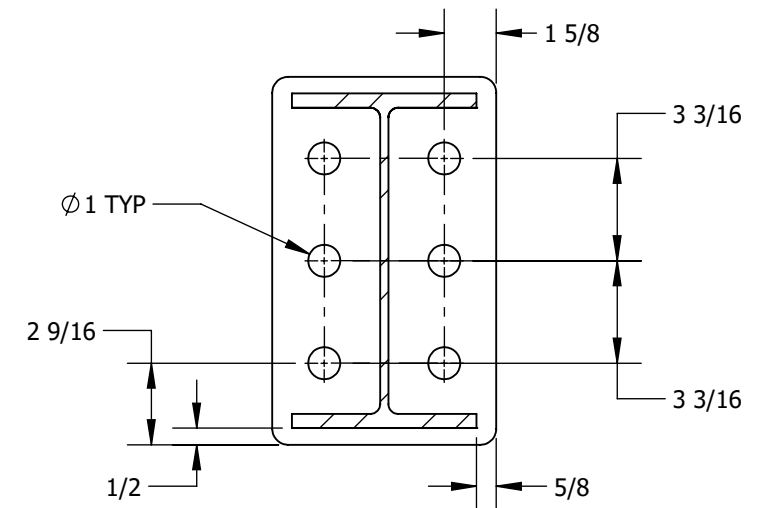
WELD SHALL NOT UNDERCUT EDGE OF FLANGE

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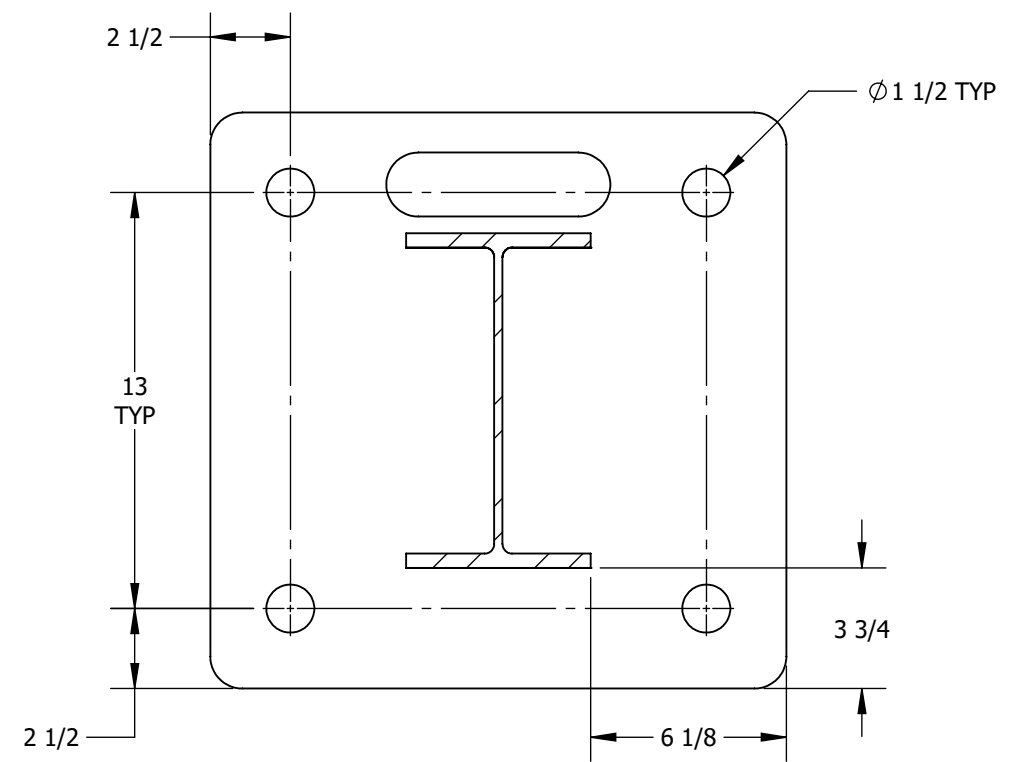
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SECTION D-D



SECTION B-B



SECTION C-C

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	SIZE	DRAWING NO.	REV
	<b>B</b>	<b>117572-ENG2</b>	<b>2</b>
SCALE:	NTS	WEIGHT: 697.7801 LBS	SHEET 3 OF 5

4

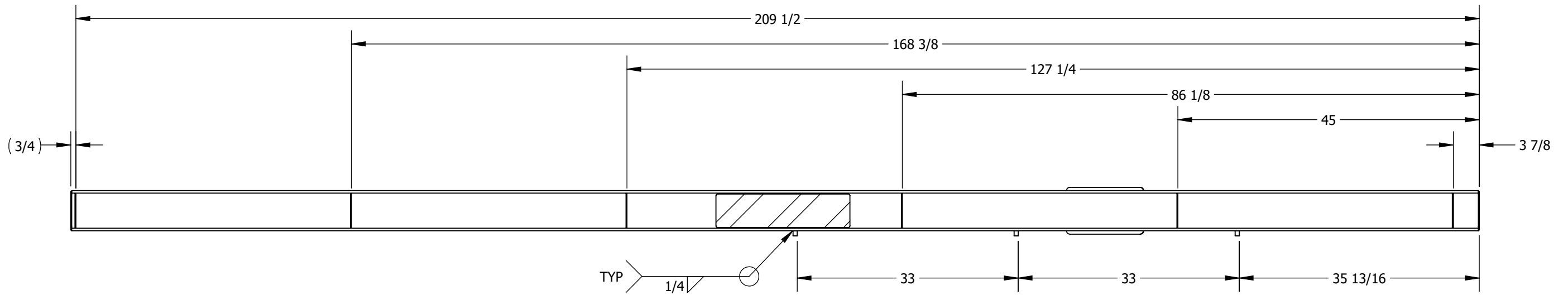
Exp. 10/31/2025

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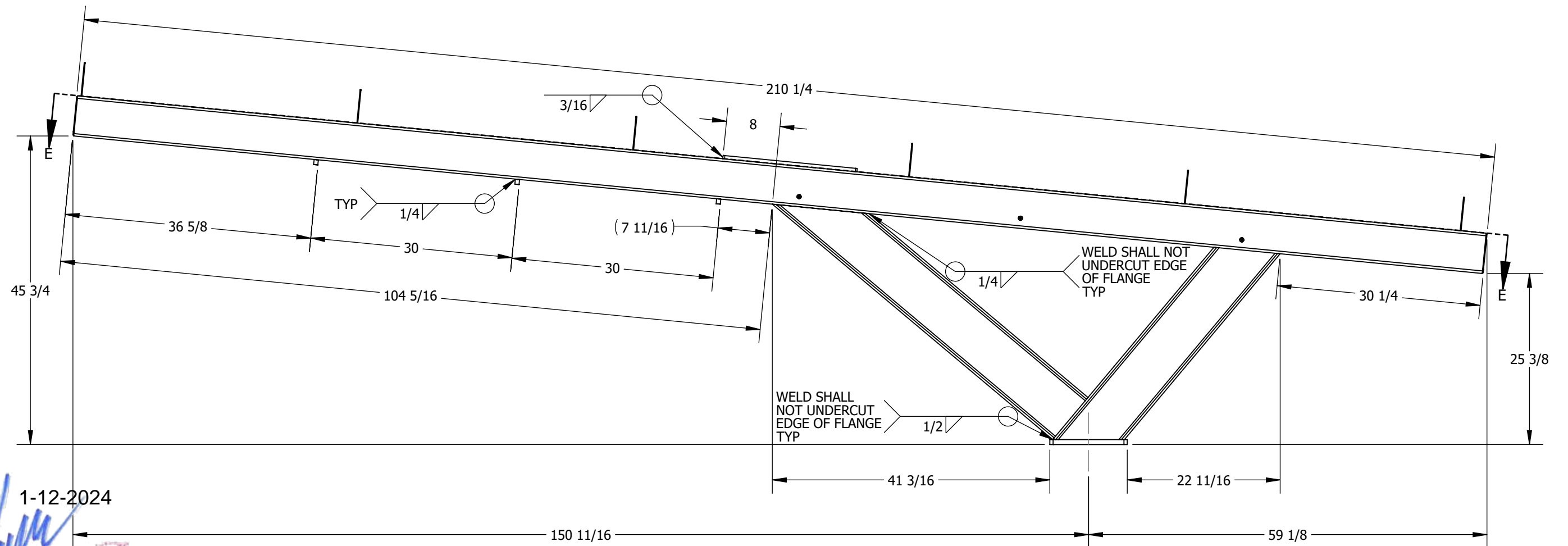
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4 3 2 1



SECTION E-E



1-12-2024  
  
 Exp. 10/31/2025

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	SIZE	DRAWING NO.	REV
	<b>B</b>	<b>117572-ENG2</b>	<b>2</b>
SCALE:	NTS	WEIGHT: 697.7801 LBS	SHEET 4 OF 5

4 3 2 1

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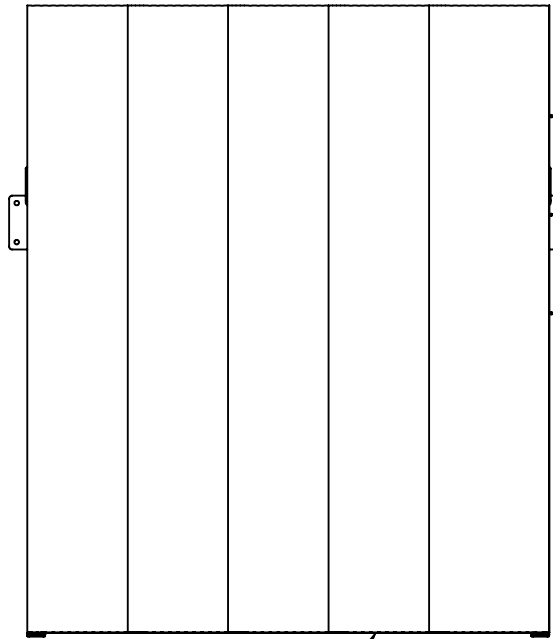
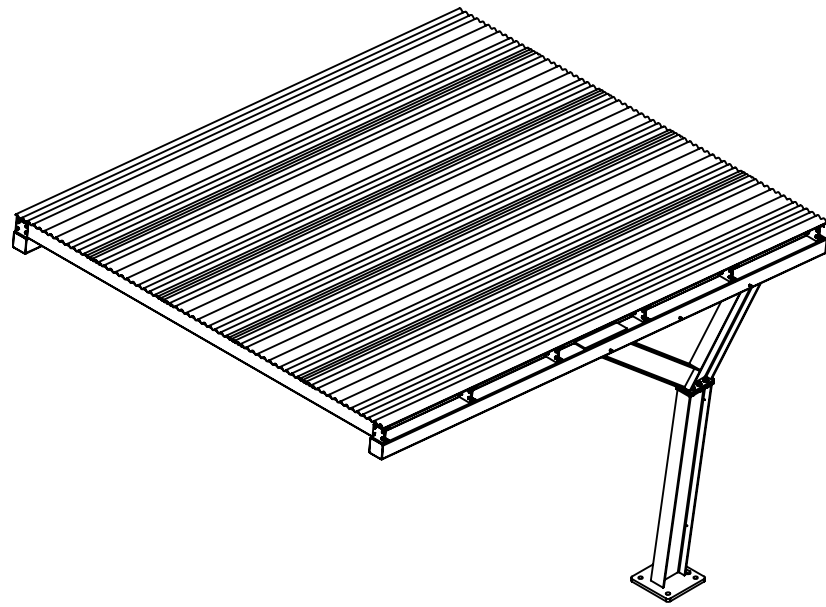
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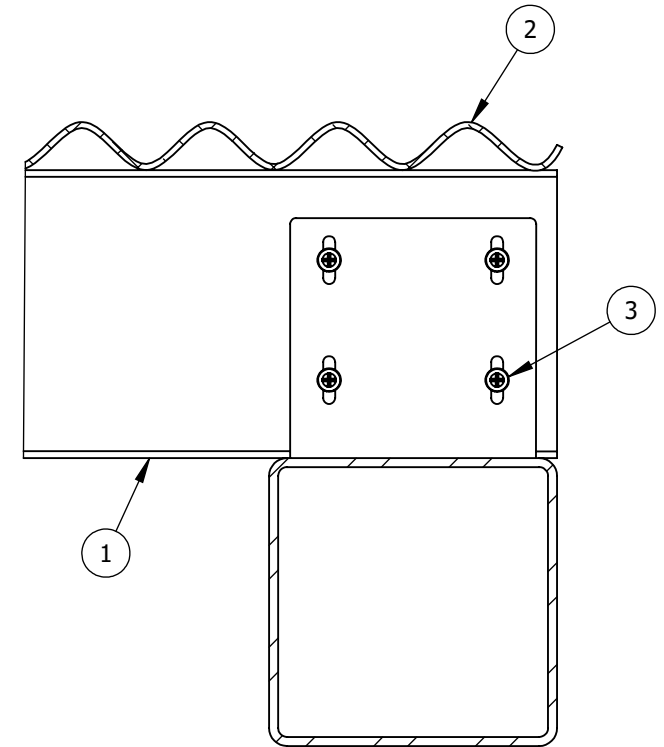
**PARTS LIST**

	DESCRIPTION	MATERIAL	QTY
1	PURLIN, CEE, 6" X 2-1/2" X 14 GA WALL CUT TO 162"	ASTM A607 C1 GR55	6
2	CORRUGATED STEEL PANEL, BERRIDGE DEEP - DECK PANEL - 22 GA (1.5" TALL)	STEEL	5
3	SCREW, 1/4"X3/4", SELF TAPPING PAN HEAD, #3 DRIVE PHILLIPS (ZS) STEEL, ZINC PLATED	Zn CS	48

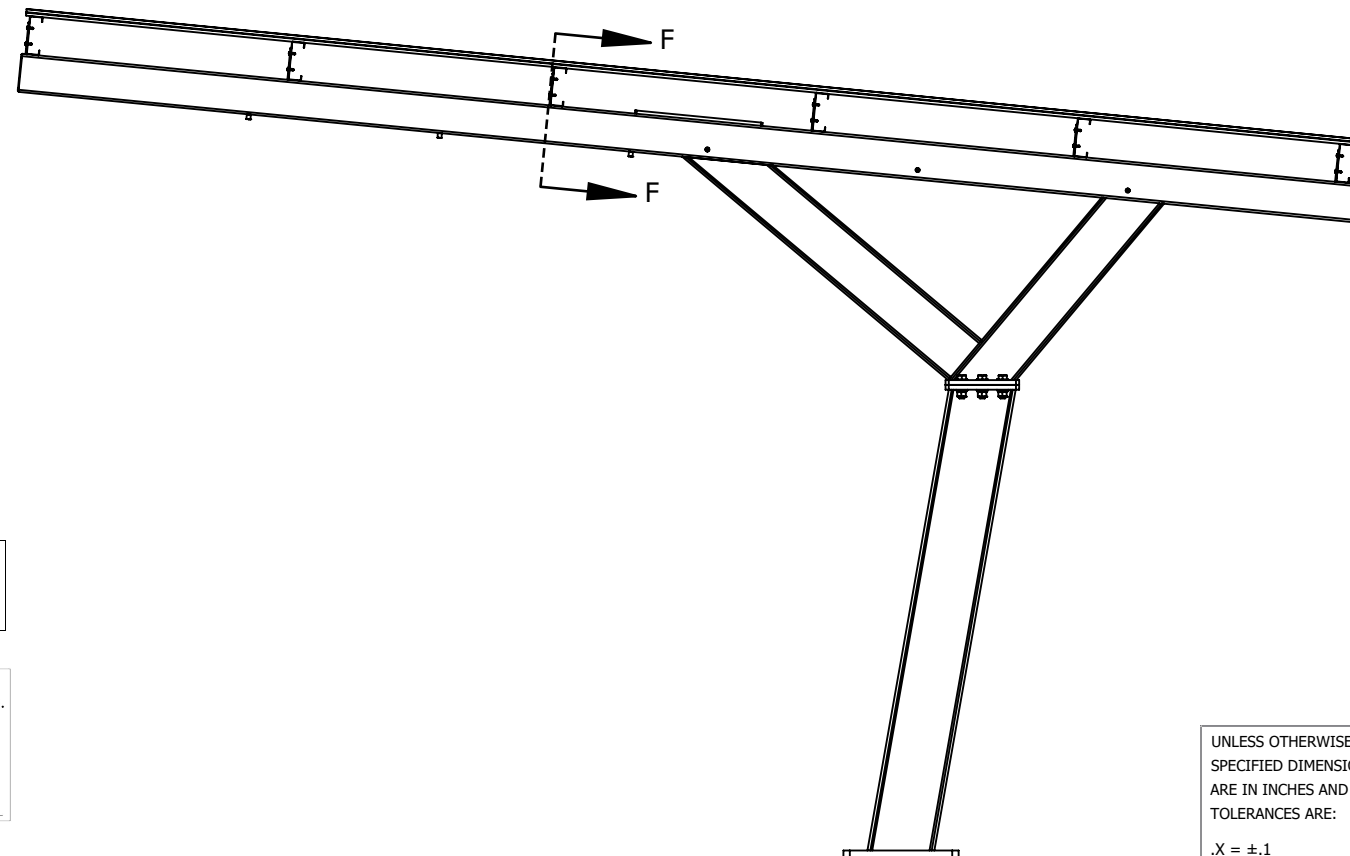


PROVIDE BARRIER BETWEEN DISSIMILAR METALS TO PREVENT GALVANIC CORROSION ALONG TOP OF C-PURLINS

ATTACH CORRUGATED STEEL TO PURLINS USING # 12 STAINLESS HWH DRILL SCREWS (10) PER 36" PANEL, PER PURLIN, EQUALLY SPACED, ATTACH W/ 2 SCREWS AT EACH BOTTOM FLUTE & SIDELAP W/ #12 STAINLESS DRILL SCREWS CONNECTIONS AT 12" O.C. WITH NEOPRENE WASHERS



SECTION F-F  
TYPICAL PURLIN ATTACHMENT



1-12-2024



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JOB # 641-23

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.XX = ±.01  
.XXX = ±.005  
FRACTION = ±1/16  
ANGULAR = ±.5°

CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE <b>B</b>	DRAWING NO. <b>117572-ENG2</b>	REV <b>2</b>
SCALE: NTS	WEIGHT: 697.7801 LBS	SHEET 5 OF 5	

**GENERAL NOTES:**

1. CORRUGATED STEEL PANELS TO BE INSTALLED PERPENDICULAR TO PURLINS USING STAINLESS STEEL SELF-DRILLING/SELF-TAPPING SCREWS

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B

B

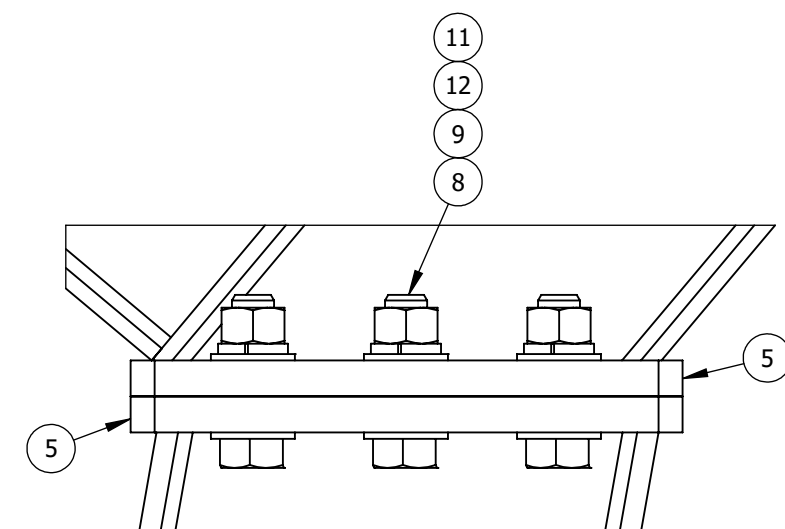
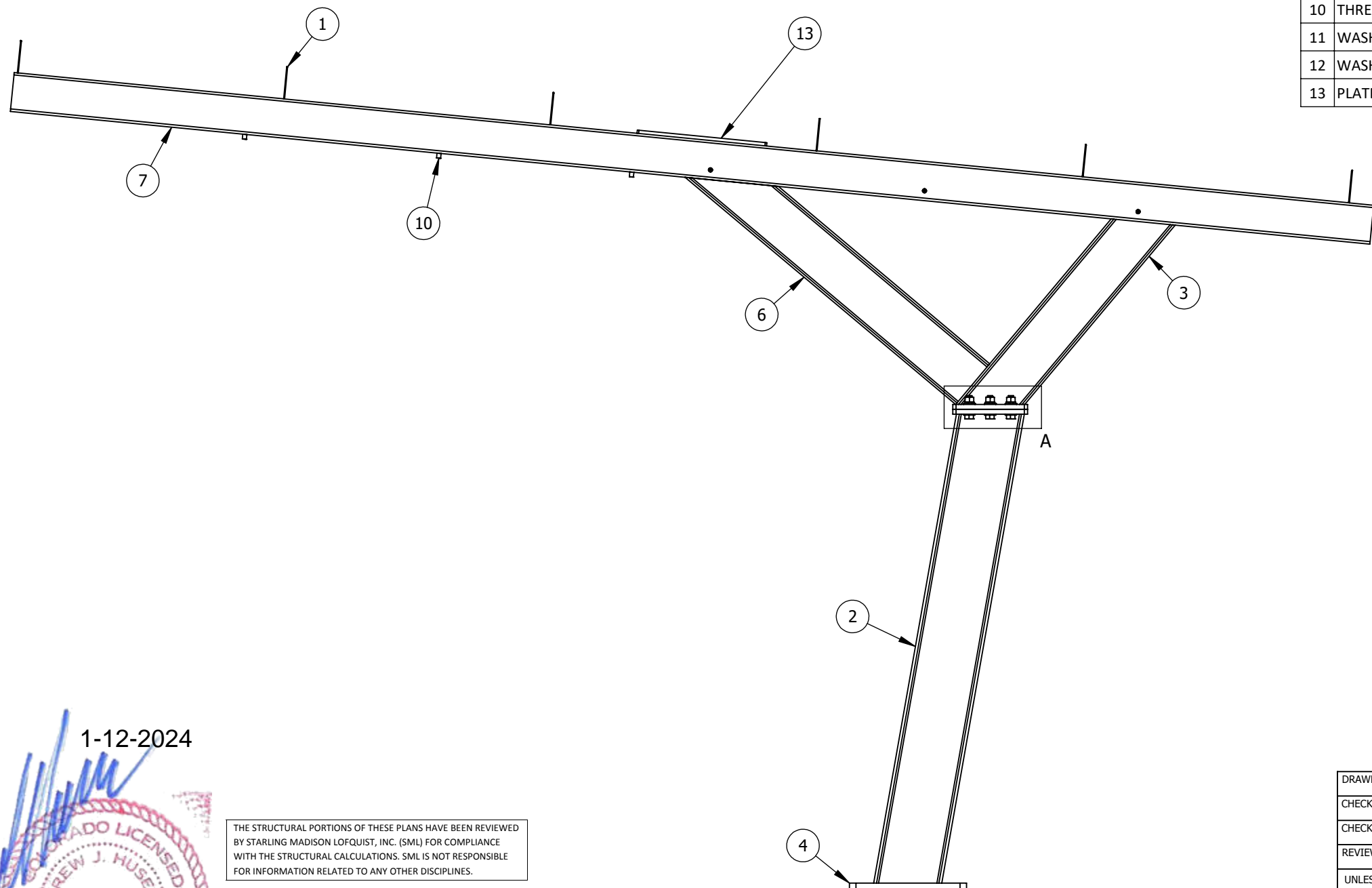
A

A

FOR ALL ARCHES EXCEPT #1, 6, 7, 11, 12, 16, 17, 22, 23, 30, 31, 33

PARTS LIST

	DESCRIPTION	MATERIAL	QTY
1	SHEET, 10 GA RIVAL ARCH PURLIN ATTACHMENT (CS)	CS A1008	6
2	W BEAM, 10" X 26 CUT TO 75", RIVAL ARCH ANGLE CUT POST (CS)	CS A36	1
3	MACHINED, W BEAM, 8" X 18 CUT TO 42 13/16", RIVAL ARCH ARM BACK, SEP HOLES (CS)	CS A36	1
4	PLATE, 1-1/8 X 18 X 18 RIVAL BASE PLATE (CS)	CS A36	1
5	PLATE, 3/4" RIVAL POST FLANGE TOP (CS)	CS A36	2
6	W BEAM, 8" X 18 CUT TO 54-5/16", MITERED END	CS A36	1
7	SQUARE HSS 6.0x6.0x0.1875 CUT TO 210"	CS A500B	1
8	HEX BOLT, 7/8"-9 UNC X 3" LG. ZN GR8	Zn/Y GR 8	6
9	HEX NUT, 7/8-9 UNC, Zn/Y GR 8	Zn/Y GR 8	6
10	THREADED WELD BUNG, 1/4-20 UNC X .750" LG. X 5/8" OD.	CS A36	6
11	WASHER, FLAT, SAE, 7/8" X 1.750" OD X .134" THK, Zn/Y GR 8	Zn/Y GR 8	12
12	WASHER, SPLIT LOCK, 7/8", Zn/Y GR 8	Zn/Y GR 8	6
13	PLATE, RECTANGLE, 5" X 20" X 1/2" THICK (CS), RIVAL ARM SUPPORT	CS A36	1



DETAIL A

1-12-2024

*[Signature]*

PROFESSIONAL ENGINEER  
ANDREW J. HUSEMAN  
43447  
COLORADO LICENSED

Exp. 10/31/2025

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3600 E. University Dr. Suite 1400  
Phoenix, Arizona 85034  
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fax. (602) 438-2505  
JOB # 641-23  
Consulting Structural and Forensic Engineers

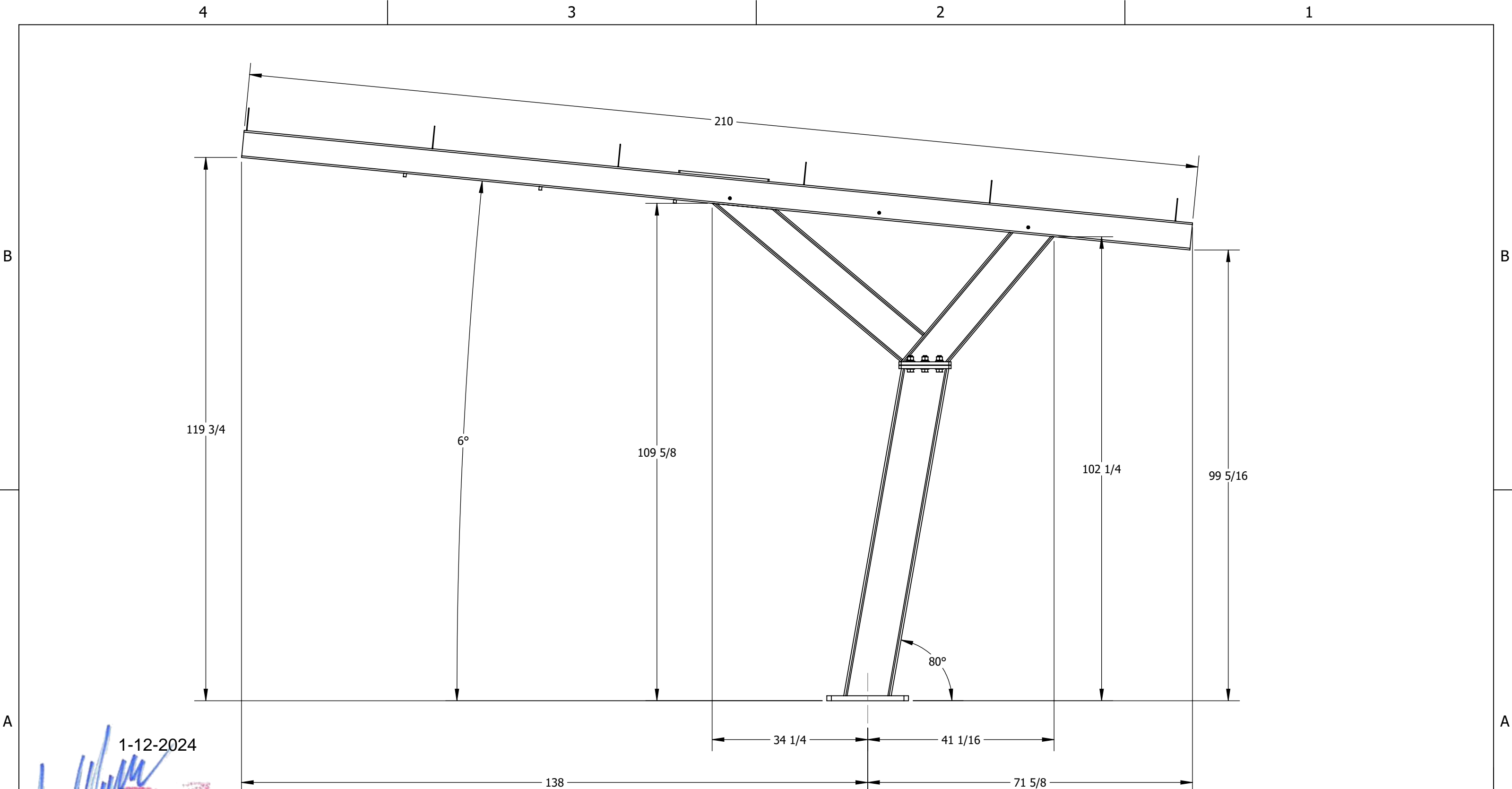
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DRAWN BY	AMV	01/09/2024
CHECKED BY		
CHECKED BY		
REVIEWED BY		

**VACUTECH**  
AN *NCS* COMPANY

VACUTECH, LLC  
1350 HI-TECH DRIVE  
SHERIDAN, WY 82801  
1-800-917-9444  
www.vacutechllc.com

CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
SIZE	DRAWING NO.	REV	
<b>B</b>	<b>117572-ENG3</b>	<b>0</b>	
SCALE:	NTS	WEIGHT: 691.7337 LBS	SHEET 1 OF 5



1-12-2024

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CLIENT ADDRESS			
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SCALE:	NTS	WEIGHT: 691.7337 LBS	SHEET 2 OF 5

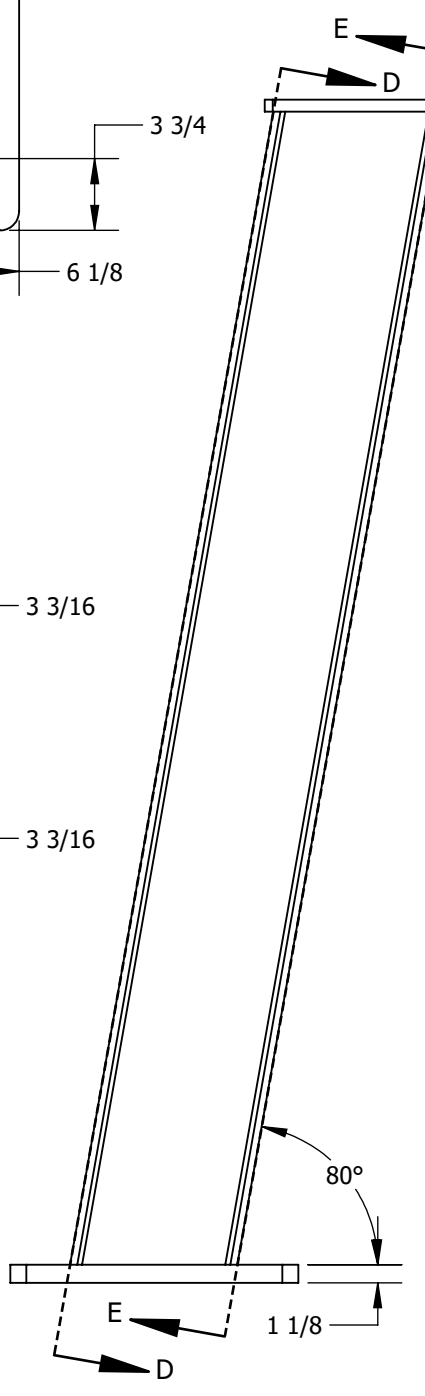
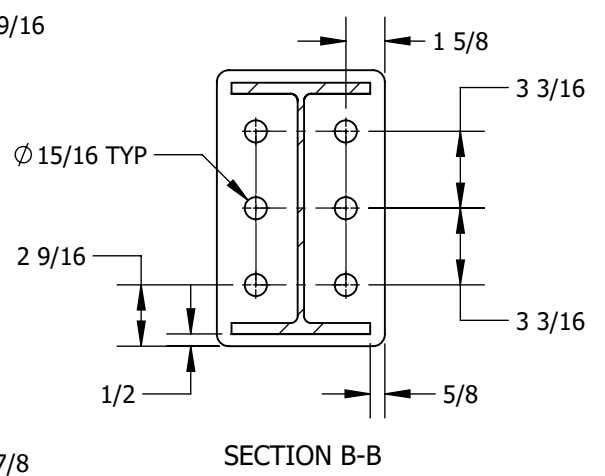
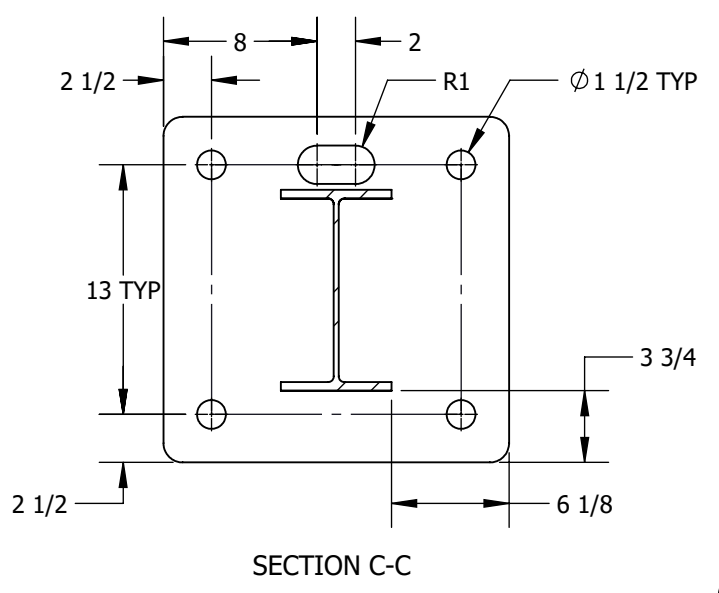
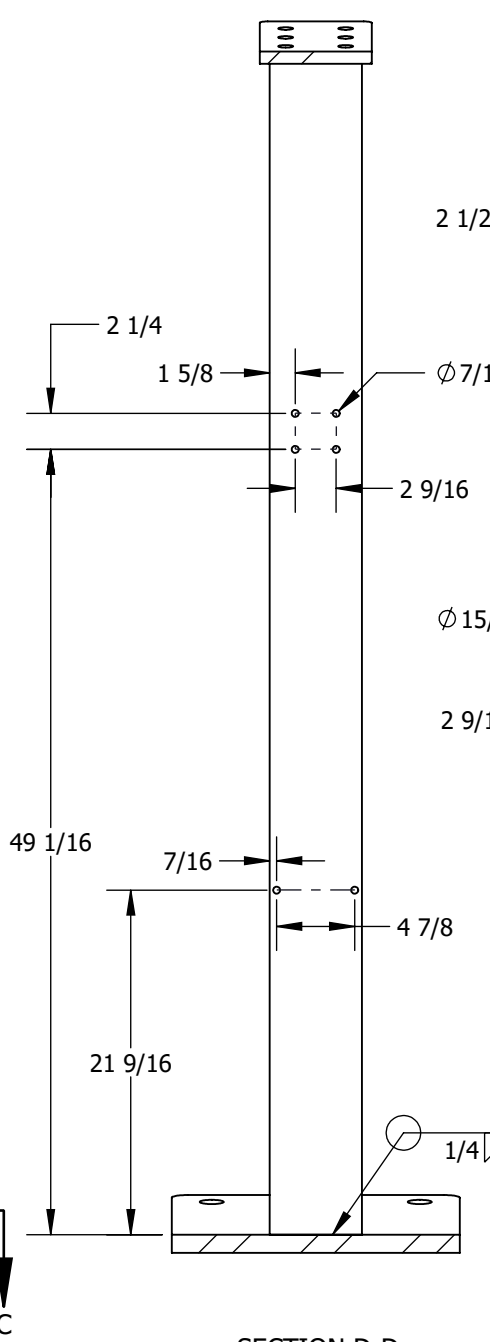
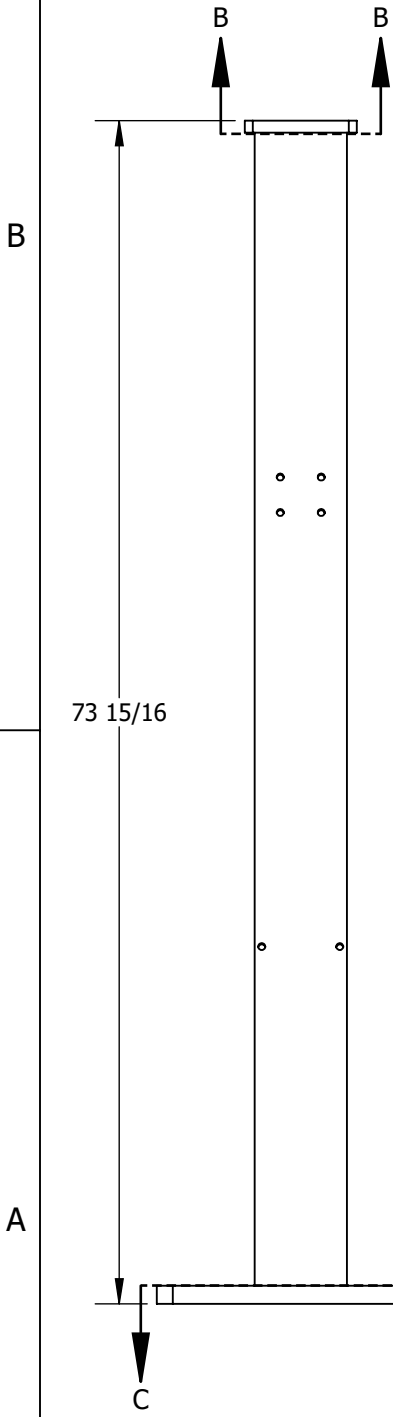
*[Handwritten Signature]*  
 COLORADO LICENSED PROFESSIONAL ENGINEER  
 ANDREW J. HUSEMANN  
 43447  
 Exp. 10/31/2025

4

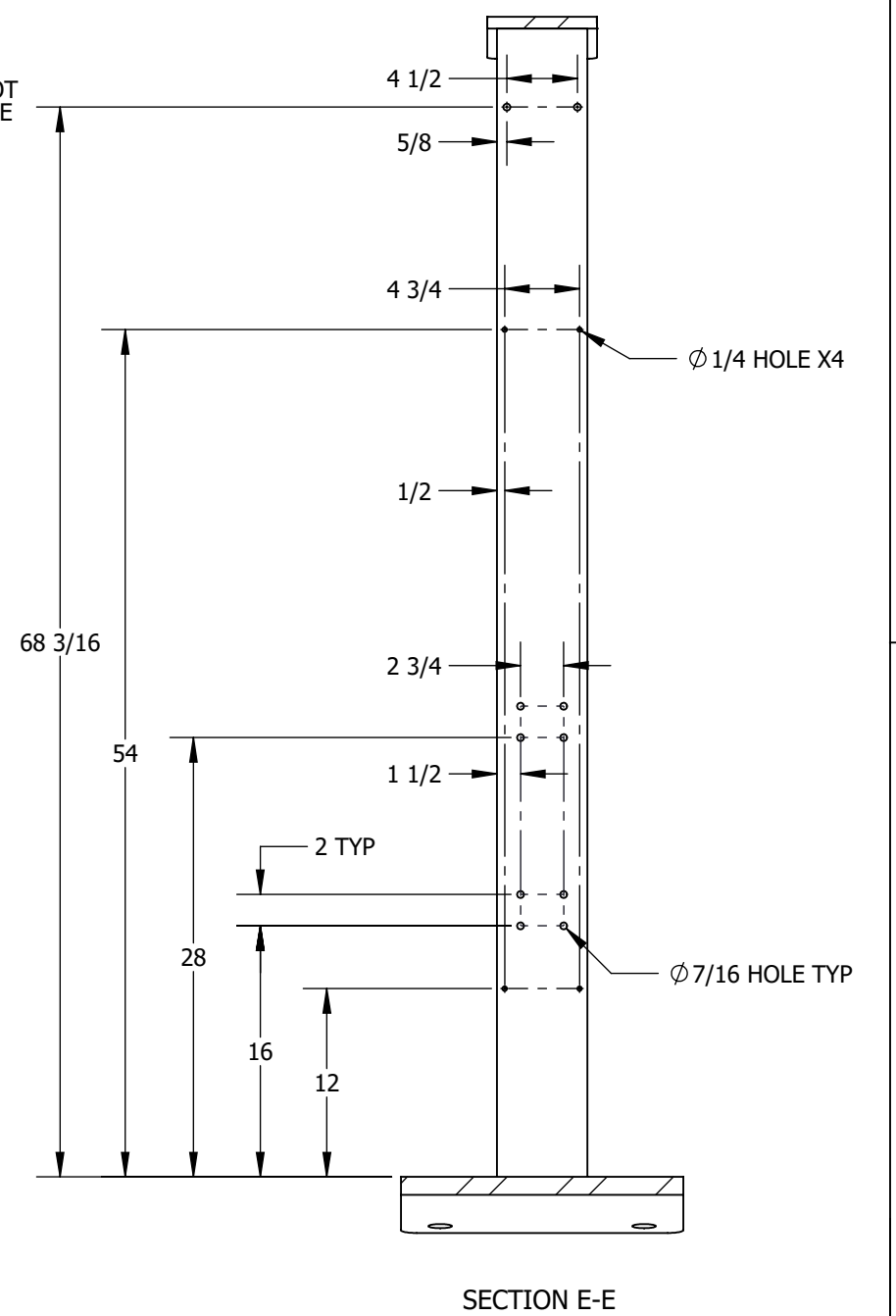
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1



1-12-2024  
 Exp. 10/31/2025  
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 43447



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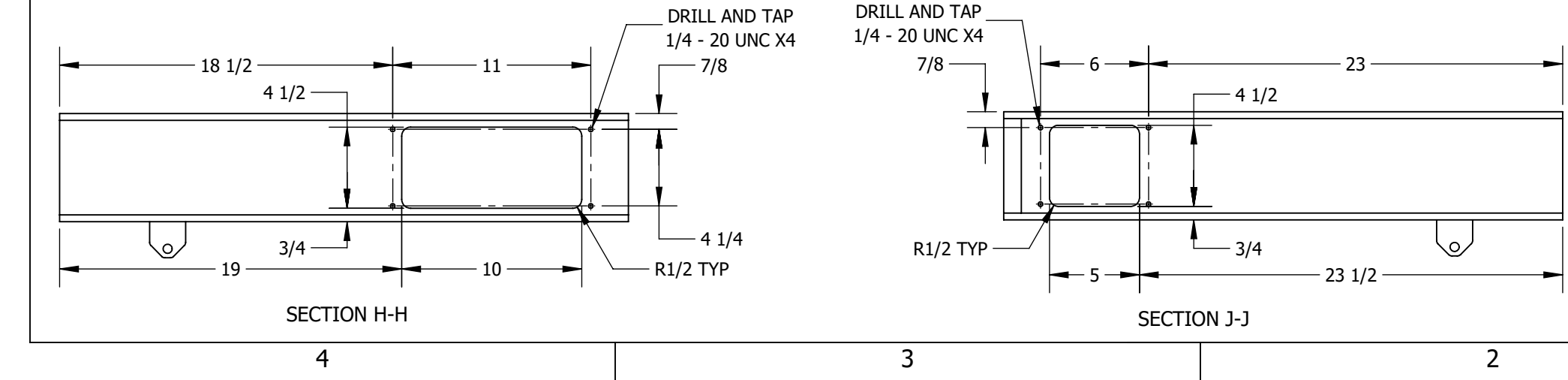
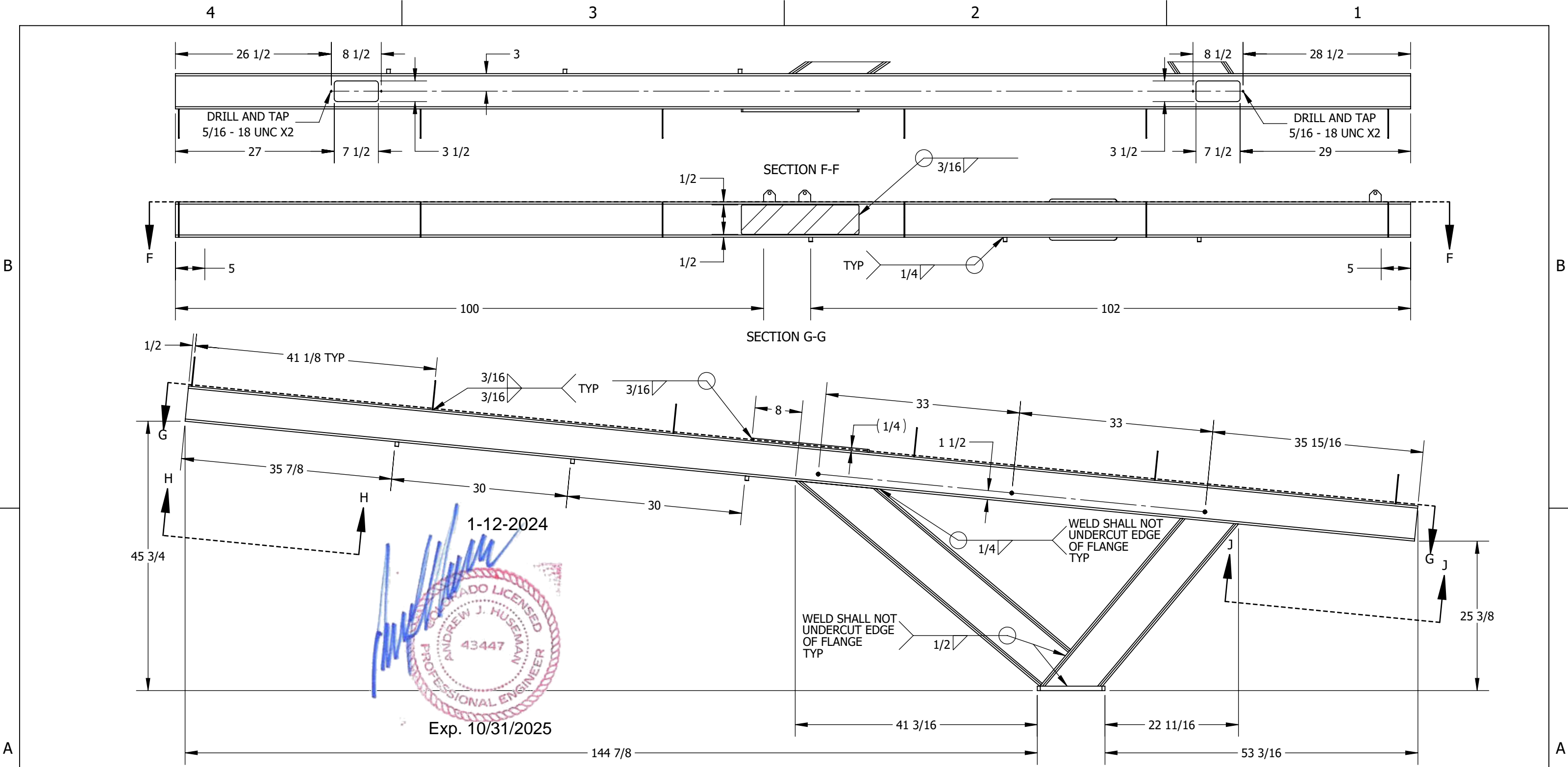
CLIENT NAME		<b>COBBLESTONE</b>	
CLIENT ADDRESS		<b>PARKER ROAD &amp; PINE LANE AVE. PARKER, COLORADO 80134</b>	
	SIZE	DRAWING NO.	REV
	<b>B</b>	<b>117572-ENG3</b>	<b>0</b>
SCALE:	NTS	WEIGHT: 691.7337 LBS	SHEET 3 OF 5

4

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CLIENT NAME: **COBBLESTONE**

CLIENT ADDRESS: **PARKER ROAD & PINE LANE AVE.  
PARKER, COLORADO 80134**

SIZE: **B**

DRAWING NO.: **117572-ENG3**

REV: **0**

SCALE: NTS

WEIGHT: 691.7337 LBS

SHEET 4 OF 5

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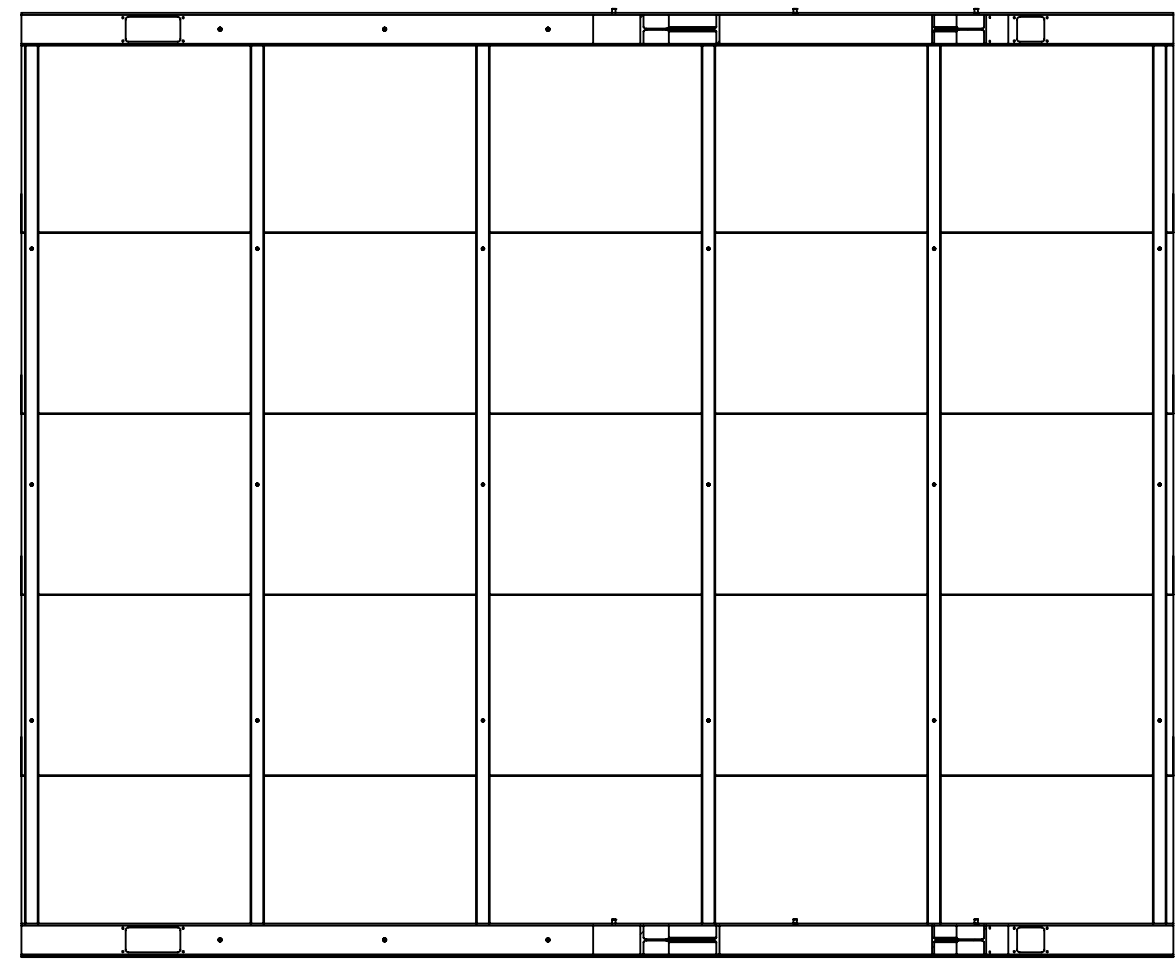
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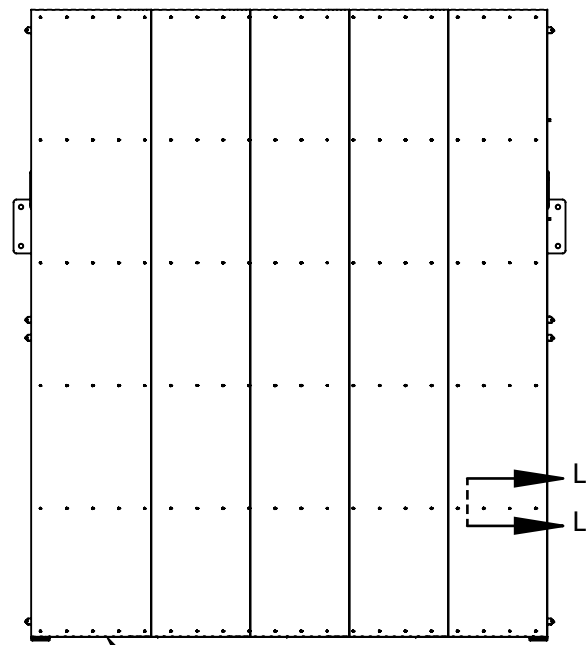
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### PARTS LIST

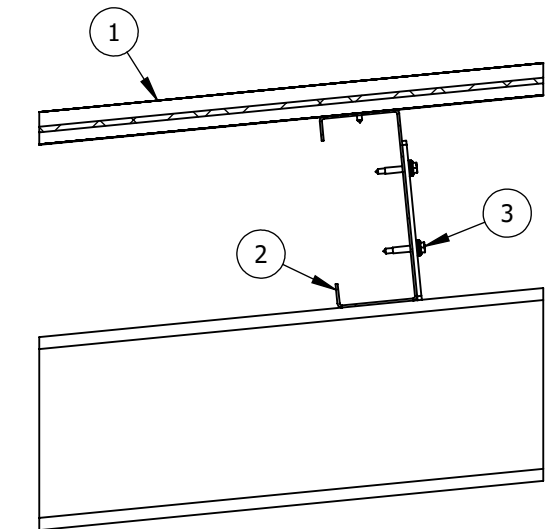
	DESCRIPTION	MATERIAL	QTY
1	CORRUGATED STEEL PANEL, BERRIDGE DEEP - DECK PANEL - 22 GA ( 1.5" TALL)	STEEL	5
2	PURLIN, CEE, 6" X 2-1/2" X 14 GA WALL CUT TO 173"	ASTM A607 C1 GR55	6
3	SCREW, HEX HEAD, #10 - 3/4" SELF DRILLING W/ BONDED SEALING WASHER	Zn CS	48



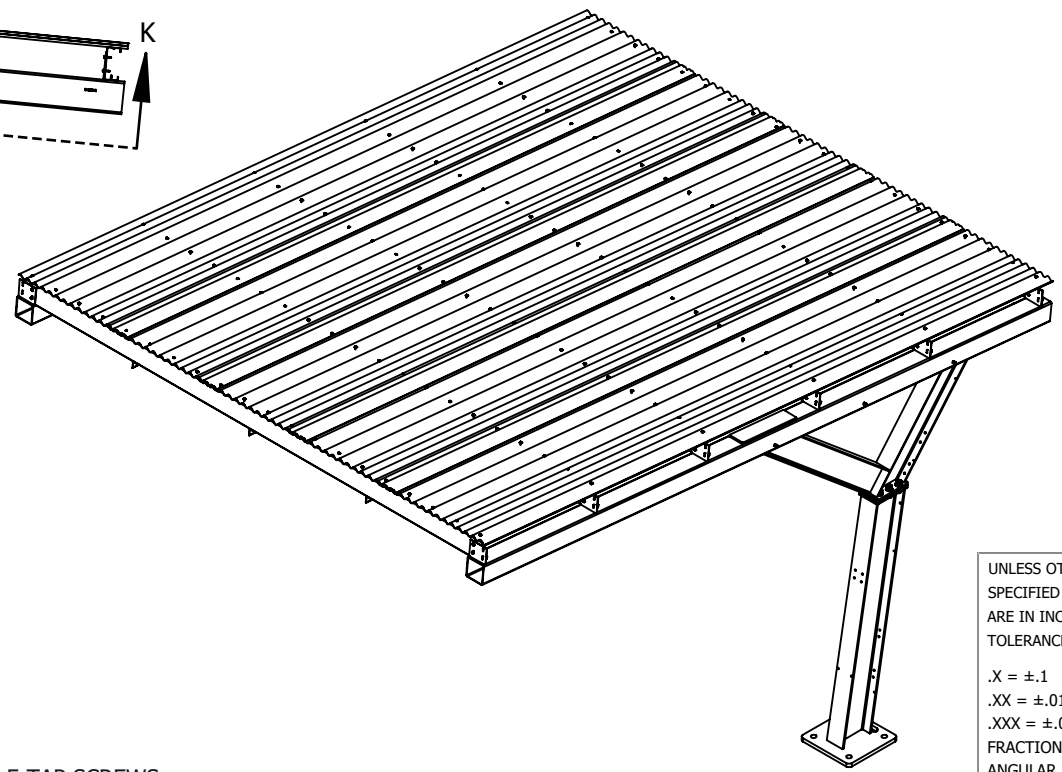
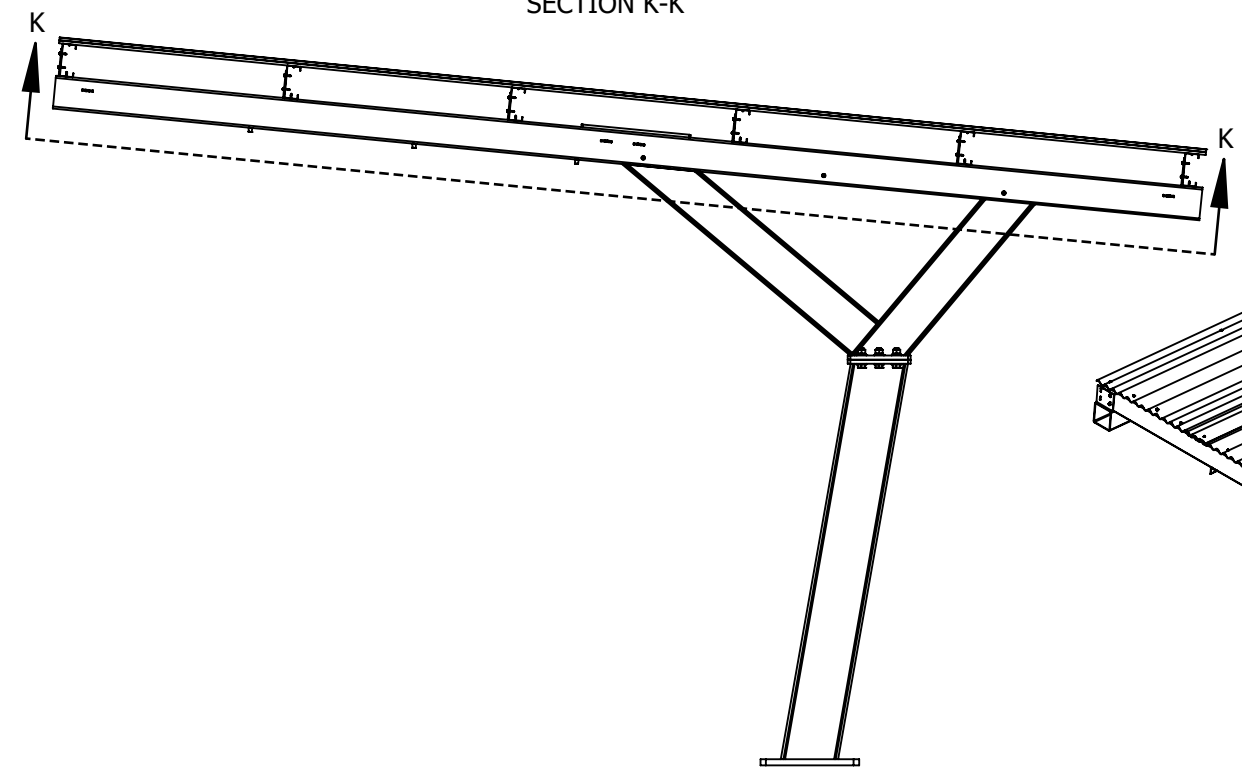
SECTION K-K



ATTACH CORRUGATED STEEL TO PURLINS USING # 12 STAINLESS HWH DRILL SCREWS (10) PER 36" PANEL, PER PURLIN, EQUALLY SPACED, ATTACH W/ 2 SCREWS AT EACH LOW FLUTE & SIDELAP W/ #12 STAINLESS DRILL SCREWS CONNECTIONS AT 12" O.C. WITH NEOPRENE WASHERS



SECTION L-L  
PURLIN ATTACHMENT DETAIL  
TYP



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4

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1