



Iron Woman
Construction and
Environmental Services LLC

IRON WOMAN CONSTRUCTION & ENVI

Compark Village South F1
Belford & Peoria
Parker, CO 80134

To:

From:

Liz Resetar
Iron Woman Construction
5680 Emerson St
Denver, CO 80216

SUBMITTAL INFORMATION

Submittal No: 15
 Submittal Description: Conspan Wing Wall & Retaining Wall
 Date Submitted: 04/30/2021
 Response Requested By: 05/05/2021
 Date Response Received: 05/06/2021

PRODUCT DATA

ITEM #	DESCRIPTION	DWG / SPEC #	SECTION #	ITEM STATUS
	#4 - REVISED - retaining wall			New
	#2 REVISED Conspan & Wing Wall			Revise & Resubmit
	#3 - REVISED - retaining wall design			Revise & Resubmit
	Conspan Wing Wall & Retaining Wall			Approved as Noted
	REVISED Conspan Wing Wall & Retaining Wall			Approved as Noted

Remarks:

#4 - REVISED - retaining wall design for review & approval.

I certify that the above submitted item(s) have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise noted.

SUBMITTAL REVIEW & APPROVAL

Reviewed By:	Engineer's Approval Stamp	SHOP DRAWING REVIEW
Date:		<input checked="" type="checkbox"/> Reviewed <input type="checkbox"/> Note Comments <input type="checkbox"/> Rejected <input type="checkbox"/> Not Reviewed/Outside Scope of Services <input type="checkbox"/> Resubmit after required General Contractor Review <input type="checkbox"/> Revise and Resubmit
Status:	<input type="radio"/> Approved	<input type="radio"/> Approved as Noted
Comments:	Review performed to determine general conformance with the design concept set forth in the Contract Documents. Review does not relieve contractor of sole responsibility for means, methods, sequencing, scheduling of work, verification of quantities and dimensions or the performance of the work in a safe manner. No comments on the shop drawings will relieve the contractor from performing the work in a manner consistent with the Contract Documents. Manhard Consulting B: <u>Amie S. Drucker, PE</u> Date: <u>7-15-21</u>	

NO STRUCTURAL DESIGN REVIEW

GENERAL NOTES

THIS DRAWING IS PROVIDED TO ILLUSTRATE THE STRUCTURAL ENGINEERING OF THE MEMBERS ASSOCIATED WITH NEW CONSTRUCTION ONLY. IT IS NOT INTENDED TO BE FULLY DIRECTIVE NOR COVER ENGINEERING DETAILS OF SUCH MATERIALS, PRODUCTS OR EQUIPMENT NOR THE INTERCONNECTION THEREWITH FOR AREAS OF THE STRUCTURE CURRENTLY EXISTING. BECAUSE INNOVATIVE STRUCTURAL SERVICES (ISS) DOES NOT CONTROL JOB SITE ASSEMBLY OR PROCEDURES, GRADE AND QUALITY OF MATERIALS OR EQUIPMENT SUPPLIED BY OTHERS, IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTOR(S) TO ADHERE TO WORKMANSHIP CONSISTENT WITH SAFE BUILDING PRACTICES AND COMPLIANCE WITH ALL ASSOCIATED BUILDING CODES AND ENSURE THAT ALL MATERIALS COMPLY WITH THIS DESIGN.

ISS SHALL NOT BE RESPONSIBLE IN THE EVENT OF ANY DEVIATIONS, CHANGES OR ALTERATIONS TO THE RECOMMENDED DETAILS DESCRIBED IN THIS DRAWING UNLESS SUCH DEVIATIONS, CHANGES OR ALTERATIONS ARE ILLUSTRATED IN A REVERSED ISS DRAWING OR ARE APPROVED IN WRITING BY AN AUTHORIZED ISS REPRESENTATIVE. ALL DRAWINGS ARE INTENDED TO BE PRINTED ON 24"x36" (ARCH D) SIZE PAPER. IF PLOTTED TO FIT ON SMALLER PAPER, ADJUST SCALES ACCORDINGLY.

- ALL DIMENSIONS AND DETAILS SHOWN ON THIS LAYOUT MUST BE CHECKED AND VERIFIED BY THE OWNER AND/OR CONTRACTOR(S) BEFORE PROCEEDING WITH THE WORK OR MATERIAL ACQUISITION.
- THE ENGINEERED SYSTEM SHOWN ON THIS LAYOUT IS BASED ON THE 2008 IBC & LIVE AND DEAD LOADS INCLUDED IN ASCE STANDARD 7-10. "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".
- LIVE LOADS USED IN DESIGN:
 - ROOF - 30 Psf
GROUND SNOW LOAD: 42.9 Psf
 - TYPICAL FLOOR - 40 Psf
 - STORAGE - 80 Psf
 - CORRIDORS & BALCONIES - 100 Psf
 - MECHANICAL (EQUIPMENT SPECIFIC) - N/A

- WIND:
 - BASIC WIND SPEED (ULTIMATE) - 135 MPH
 - EXPOSURE - C
 - SEISMIC - B
4. ELEMENTS SUCH AS NON-BEARING PARTITIONS, ETC. ATTACHED TO AND/OR SUPPORTED BY THE STRUCTURE SHALL TAKE INTO ACCOUNT DEFLECTIONS AND OTHER STRUCTURAL MOVEMENTS.
5. CONTRACTOR IS RESPONSIBLE FOR ALL FALSEWORK, SHORING, AND LATERAL BRACING OF THE STRUCTURE AND RELATED FALSEWORK DURING CONSTRUCTION DESTRUCTION AND/OR ERECTION. CONTRACTOR IS ALSO RESPONSIBLE FOR PERMANENT STRUCTURAL LATERAL BRACING SCHEMES FOR ALL TIMBER CONSTRUCTION. THIS ENGINEERED SYSTEM, AS SHOWN, IS DESIGNED ON THE ASSUMPTION THAT MEMBERS WILL BE RESTRAINED FROM LATERAL MOVEMENT. SUFFICIENT LATERAL SUPPORT MUST BE PROVIDED WHERE NECESSARY TO PREVENT LATERAL TRANSLATION AND/OR ROTATION OF THE STRUCTURE.
6. THIS PRINT IS THE PROPERTY OF ISS & IS FURNISHED FOR THE EXCLUSIVE USE BY THE STRUCTURE'S OWNER AND PROJECT CONTRACTOR(S) ON THE CONDITION THAT IT IS NOT TO BE COPIED OR USED BY OTHERS WITHOUT ISS PRIOR WRITTEN CONSENT.

- CONCRETE:

ALL CAST-IN-PLACE CONCRETE SHALL BE MADE WITH TYPE III PORTLAND CEMENT, STONE AGGREGATE, AND SHALL SATISFY THE FOLLOWING CRITERIA:

MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE (F'_c) = 4500 Psl

ALLOWABLE TENSILE STRESS = 503 Psl

CONCRETE MIX DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR RELATED SUPPLIERS.

MAXIMUM SLUMP SHOULD NOT EXCEED: 4 IN.

ALL CONCRETE WORK AND REINFORCEMENT DETAILING SHALL BE IN ACCORDANCE WITH AC BUILDING CODE 308 2008 EDITION

USE STANDARD HOOKS FOR DOVELS UNLESS NOTED OTHERWISE.

EXPOSED EDGES OF CONCRETE SHALL HAVE ¾" CHAMFER(S).

IF CONCRETE SUPPLIER PROPOSES THE USE OF FLYASH, HE SHALL PROVIDE THE OWNER WITH LETTER INDICATING COST REDUCTION AT THE OF BID. THE MINIMUM MODULUS OF ELASTICITY OF ALL CONCRETE SHALL EXCEED (57,000)*(F'_c)^{0.5} FOR NORMAL WEIGHT CONCRETE.

CONTRACTOR SHALL PROVIDE CONTROL JOINTS IN WALLS. JOINTS SHALL BE SPALED AT A MAXIMUM DISTANCE OF 16'-0" o.c. AND INSTALLED TO A DEPTH EQUAL TO 1 ½" DEPTH (¾" MINIMUM THICKNESS) CARRY ALL REINFORCEMENT THROUGH JOINT.

SLABS, FOOTINGS, BEAMS AND WALLS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT THIRD POINTS OF SPAN WITH VERTICAL BULKHEADS AND HORIZONTAL SHEAR KEYS UNLESS OTHERWISE SHOWN. ALL CONSTRUCTION JOINTS SHALL BE AS DETAILED OR AS REVIEWED BY THE ENGINEER OF RECORD (EOR).

- FOUNDATIONS:

GENERAL:

IN THE ABSENCE OF A CURRENT SOILS REPORT, THE DESIGN IS BASED UPON THE FOLLOWING ASSUMPTIONS WHICH MAY NOT ADEQUATELY CONTROL FOUNDATION MOVEMENT:

SOIL CONSISTENCY = SAND & CLAY

SOIL COHESION FACTOR = 150 Psf

SOIL ADHESION FACTOR = 0.16

SPREAD FOOTINGS:

ALLOWABLE SOIL BEARING PRESSURE = 2000 Psf

MIN. BELOW GRADE DEPTH @ BOTTOM OF FOOTING = 36 IN.

DRILLED PIERS:

ALLOWABLE SOIL BEARING PRESSURE = N/A

CAISSON SIDE SHEAR RESISTANCE = N/A

MINIMUM CAISSON DEPTH = N/A

- IN ORDER TO ACHIEVE 100% ACCURACY, OWNER SHOULD PERFORM A STANDARD SOILS ANALYSIS TEST AND REPORT.

IF PERFORMED, OWNER SHOULD ENSURE THAT CONTRACTOR FOLLOWS ALL RECOMMENDATIONS AS OUTLINED BY THE SOILS REPORT PREPARED BY:

CESAIRE INC. DATE: 5/12/2016

-DO NOT PLACE BACKFILL AGAINST BELOW GRADE WALLS UNTIL ALL RELATED FLOOR STRUCTURES ARE IN PLACE. CONTRACTOR IS RESPONSIBLE FOR ALL FOUNDATION DRAINAGE SYSTEMS AND SITE GRADING AS REQUIRED TO PREVENT WATER INFILTRATION OF THE FOUNDATION SOIL.

-ALL FOOTING BEARING ELEVATIONS ARE ASSUMED. EXACT BEARING ELEVATIONS SHALL BE VERIFIED IN THE FIELD WITH ACTUAL CONDITIONS BY CONTRACTOR WITH APPROVAL OF SOILS ENGINEER.

-CENTER ALL FOOTINGS ON COLUMNS OR GRID LINES UNLESS NOTED OTHERWISE.

SLABS ON GRADE AND FOUNDATION BEARING SOIL:

-THE PREPARATION OF THE SUBGRADE SHALL BE COMPACTED TO WITHIN 95% OF STANDARD PROCTOR MAXIMUM DENSITY UNLESS OTHERWISE SPECIFIED BY THE PROJECT SOILS REPORT REFERENCED ABOVE. THE CONTRACTOR SHALL DIRECT QUESTIONS REGARDING THE SUBGRADE PREPARATION REQUIREMENTS TO THE GEOTECHNICAL ENGINEER.

-MOVEMENT OF THE SLAB ON GRADE MAY CAUSE DAMAGE TO ANYTHING CONNECTED TO BOTH THE SLAB AND OTHER PORTIONS OF THE SUPERSTRUCTURE. ISOLATION DETAILS FOR PARTITION WALLS, BASEBOARDS, PIPING, AND OTHER ITEMS MAY BE REQUIRED. REFER TO THE APPROPRIATE DRAWINGS OR CONSULT WITH THE RESPONSIBLE MEMBER OF THE DESIGN TEAM PRIOR TO CONNECTING ITEMS TO BOTH THE SLAB ON GRADE AND OTHER PORTIONS OF THE SUPERSTRUCTURE.

-UNSTABLE SOIL CONDITIONS IDENTIFIED AS SUBJECT TO EXCESSIVE SETTLING AND/OR HEAVING SHALL BE OVEREXCAVATED AND COMPACTED ADEQUATELY IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S WRITTEN GUIDANCE AND OBSERVATION.

-STRUCTURAL FILL SHALL BE PER THE RECOMMENDATION OF GEOTECHNICAL ENGINEER. CONTRACTOR SHALL VERIFY THE ADEQUACY OF FIELD COMPACTION AS REQUIRED.

-COMPACTION WITHIN FIVE FEET OF EXISTING STRUCTURAL ELEMENTS SHALL BE ACCOMPLISHED WITH LIGHTWEIGHT HAND HELD EQUIPMENT. EXPOSED CAPE SO EXISTING WALLS, SLABS, FOOTINGS ETC. ARE NOT DISPLAYED OR CRACKED

- REINFORCING:

ALL REINFORCING SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 (EXCEPT TIES).

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 GRADE 65 AND SHALL BE LAPPED ONE FULL MESH AT SIDE AND END SPICES AND WIRED TOGETHER.

REINFORCEMENT PLACEMENT AND TOLERANCES SHALL BE IN ACCORDANCE WITH SECTIONS 15. 7.6, & 7.7 OF AC 318 LATEST EDITION.

NO SPICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE EOR. LAP SPICES, WHERE PERMITTED SHALL BE A MINIMUM OF 48 BAR DIAMETERS FOR #6 BARS AND SMALLER. #7 & #8 BARS SHALL HAVE A MINIMUM LAP DISTANCE OF 80 BAR DIAMETERS.

MAKE BARS CONTINUOUS AROUND CORNERS.

- MINIMUM CONCRETE COVER (ACI 318 7.7.1):

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3" MIN.

EXPOSED TO WEATHER:

- #5 BARS OR SMALLER = ½" MIN.

- #6 OR LARGER BARS = 2" MIN.

NOT EXPOSED TO WEATHER OR EARTH:

- #11 BARS OR SMALLER = ¾" MIN.

- #12 OR LARGER BARS = 1" MIN.
- MASONRY:

DEVELOP 1800 PSI ULTIMATE COMPRESSIVE STRENGTH (f'_m) IN 28 DAYS.

MORTAR: TYPE M OR S AS REQUIRED FOR BELOW GRADE CONSTRUCTION.

FILL BLOCK CELLS AND VOIDS SOLIDLY WITH GROUT A DISTANCE OF 24" BENEATH AND 12" EACH SIDE OF BEAM AND JOIST REACTIONS OR OTHER CONCENTRATED LOADS UNLESS NOTED OTHERWISE.

SPLICES NOT PERMITTED IN REINFORCING BARS EXCEPT AS DETAILED OR AUTHORIZED BY STRUCTURAL ENGINEER. WHERE PERMITTED, SPLICES MADE BY CONTACT LAPS, A MINIMUM OF 48 BAR DIAMETERS.

- MASONRY (CONTINUED):

GROUT SOLID ALL CELLS CONTAINING REINFORCING & ALL OTHER CELLS NOTED.

REFER TO DRAWINGS AND SPECIFICATIONS FOR REINFORCING AND OTHER REQUIREMENTS.

ALL PRIMARY REINFORCING SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 EXCEPT HORIZONTAL JOINT REINFORCING SHALL CONFORM TO ASTM A82 OR PROPRIETARY LAODER TYPE AS PER MANUFACTURER'S GUIDANCE.

INSTALLER SHALL TERMINATE HORIZONTAL JOINT REINFORCEMENT WITH THE EXCEPTION OF CONTINUOUS HORIZONTAL BOND BEAR REBAR IN ORDER TO PRODUCED CONTINUOUS VERTICAL CONTROL JOINTS WITH A MAXIMUM SPACING OF 25'-0" HORIZONTALLY.

- TIMBER MEMBERS:

THE STANDARD LUMBER DETAILS SHOWN ARE BASED ON ANS/A1F AND PA NDS - 2005 RECOMMENDATIONS FOR VISUALLY GRADED SOUTHERN PINE #1:

UNADJUSTED STRESS VALUES FOR ABOVE LUMBER:

EXTREME FIBER STRESS IN BENDING - 1500 Psl

HORIZONTAL SHEAR - 115 Psl

BEARING PERPENDICULAR TO GRAIN - 565 Psl

MODULUS OF ELASTICITY - 1400000 Psl

TRUSS-JOIST (WEYERHAEUSER) 19E MICROLAM LVL DESIGNS ARE BASED UPON THE FOLLOWING DESIGN CRITERIA:

- ALLOWABLE STRESS VALUES:

EXTREME FIBER STRESS IN BENDING - 2600 Psl

HORIZONTAL SHEAR - 195 Psl

BEARING PERPENDICULAR TO GRAIN - 1200 Psl

MODULUS OF ELASTICITY - 2000000 Psl

CONTRACTOR(S) MUST ENSURE THAT ALL FRAMING AND RELATED CONNECTIONS MEET CURRENT INDUSTRY STANDARDS AS OUTLINED BY THE BUILDING CODE ENFORCED BY THE LOCAL MUNICIPALITY.

- ALL JOISTS, STRINGERS, HEADERS, LEDGERS, OR OTHER MEMBERS MUST BE CENTERED DIRECTLY OVER THEIR SUPPORTS, UNLESS DESIGNED AND SPECIFICALLY NOTED OTHERWISE.
- SHEATHING DESIGN:

PLYWOOD AND ORIENTED STRAND BOARD (OSB) DESIGNS ARE BASED ON AMERICAN PLYWOOD ASSOCIATION (APA) RECOMMENDATIONS WITH THE FACE GRAIN OF THE PLYWOOD RUNNING AT RIGHT ANGLES TO IT'S SUPPORT AND WITH STAGGERED JOINTS.

PANEL THICKNESS SHALL BE AS SHOWN ON THE DRAWINGS. APPLICATION SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE APA.

EACH PANEL SHALL BE IDENTIFIED WITH THE GRADE TRADEMARK OF THE APA AND SHALL MEET THE REQUIREMENTS OF THE U.S. PRODUCTS STANDARD PSI, LATEST EDITION FOR PLYWOOD. ALL PANELS WHICH HAVE ANY EDGE OR SURFACE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE OF THE EXTERIOR TYPE.

FOR FLOORS, USE ¾" - ¾" SPAN RATED PLYWOOD SHEATHING.

WITH 10d NAILS @ 4" o.c. MAX. AROUND PANEL EDGES.

INTERIOR SUPPORTS CAN BE NAILED WITH 10d NAILS @ 6" o.c. MAX.

FASTER SHEATHING TO SUPPORT BLOCKING UTILIZING 10d NAILS @ 4" o.c. MAX.

FOR ROOFS, USE ¾" - ¾" SPAN RATED EXPOSURE 1 PLYWOOD OR OSB SHEATHING WITH 8d NAILS @ 4" o.c. MAX. AROUND PANEL EDGES.

INTERIOR SUPPORTS CAN BE NAILED WITH 8d NAILS @ 12" o.c. MAX.

FASTER SHEATHING TO SUPPORT BLOCKING UTILIZING 8d NAILS @ 4" o.c. MAX.

- FOR EXTERIOR WALLS USE ¾" - ¾" EXPOSURE 1 PLYWOOD OR OSB SHEATHING. NAILED WITH 10d NAILS @ 4" o.c. MAX. AROUND PANEL EDGES.

INTERIOR SUPPORTS CAN BE NAILED WITH 10d NAILS AT 12" o.c. MAX.

FASTER SHEATHING TO SUPPORT BLOCKING UTILIZING 10d NAILS @ 4" o.c. MAX.

REFER TO SHEARWALL SCHEDULE IF APPLICABLE. ALL PANEL EDGES SHALL BE BLOCKED. INSTALL SUITABLE EDGE SUPPORT BY USE OF PLYCLIPS, TONGUE AND GROOVE PANELS OR SOLID WOOD BLOCKING SUPPORTS.

- SHEARWALL DESIGN IS ACCORDING TO PERFORATED SHEARWALL DESIGN PROCEDURES AND TABLE 4.21 OF THE 2015 AMERICAN FOREST & PAPER ASSOCIATION SPECIAL DESIGN PROVISIONS FOR WIND & SEISMIC DESIGN. ALL EXTERIOR WALLS SHALL BE CONSTRUCTED PER THE SHEATHING, NAILING & BLOCKING REQUIREMENTS OUTLINED IN GENERAL NOTE #13. UNLESS NOTED OTHERWISE, FRAMING CONNECTIONS & THE DOWNS ARE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS SPECIFICALLY DETAILED ON THIS DRAWING. CONTRACTOR SHALL FASTEN ALL WOOD MEMBERS WITH COMMON NAILS.
- STRUCTURAL STEEL:

STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (50 KSI) EXCEPT PIPE & TUBE COLUMNS WHICH CONFORM TO ASTM A513 & A500 (GRADE B) RESPECTIVELY. SUPPLIER MAY SUPPLY ASTM A572 (GRADE 50 AT HIS OPTION). MISCELLANEOUS EMBODIMENT AND SHEAR TABS MAY BE A36.

ALL STRUCTURAL BOLTS SHALL BE A325N INSTALLED TO A MINIMUM OF SNUG TIGHT CONDITION. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A307 UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE AISC "MANUAL OF STEEL CONSTRUCTION" 13TH ED.

- EXCEPT WHERE DETAILED OTHERWISE, FABRICATOR SHALL SELECT STEEL CONNECTIONS PER AISC "MANUAL OF STEEL CONSTRUCTION" (ASD) TABLE 11-A AND/OR ANY STANDARD SIMPLE SHEAR CONNECTION AS OUTLINED IN AISC "SIMPLE SHEAR CONNECTION MANUAL" BASED UPON LOADS SHOWN ON DRAWING. IF LOADS ARE NOT INDICATED, SELECT CONNECTION TO SUPPORT 60% OF TOTAL UNIFORM LOAD CAPACITY PER AISC "MANUAL OF STEEL CONSTRUCTION" 13TH ED. FOR EACH GIVEN BEAM AND SPAN FOR NON-COMPOSITE MEMBERS. FOR COMPOSITE MEMBERS, CONNECTION SHALL SUPPORT 75% OF THE TOTAL CAPACITY FOR EACH BEAM AND SPAN.

- SUBMIT DESIGN CALCULATIONS, BEARING THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO, AND EMPLOYED BY THE STEEL FABRICATOR, FOR ALL CONNECTIONS NOT COMPLETELY DETAILED ON THESE STRUCTURAL DRAWINGS AND FOR ANY PROPOSED ALTERNATE CONNECTION DETAILS.

ALL WELDERS SHALL HAVE EVIDENCE OF PASSING THE AMERICAN WELDING SOCIETY STANDARD QUALIFICATIONS TESTS AS OUTLINED IN AWS-D11.

MINIMUM WELDS ARE TO BE PER AISC TABLE 12.4 BUT NOT LESS THAN ¾" CONTINUOUS FILLET UNLESS NOTED OTHERWISE.

THE TERMINOLOGY "CONTINUOUS" MEANS QUANTITY. PROVIDE THE NECESSARY JOINT DETAILS TO ALLOW FOR BUILDING MOVEMENT.

COORDINATE LOCATIONS WITH ARCHITECTURAL, MECHANICAL CONTROLS & EXPANSION JOINTS.

PROVIDE ANCHOR BOLTS FOR BEAMS AND SILL PLATES THAT BEAR ON CONCRETE OR MASONRY WALLS AS REQUIRED.

STEEL FABRICATOR SHALL NOT RECEIVE ADDITIONAL COMPENSATION FOR SHOP DRAWING THE FOR ANY REVISIONS OF ERECTION DRAWINGS NOR FOR ANY REVISIONS TO PIECE DRAWINGS PRIOR TO ENGINEER'S APPROVAL OF ERECTION DRAWINGS.

WHENEVER MASONRY RESTS ON STEEL BEAM BEAMS WITH FLANGES NARROWER THAN THE ACTUAL MASONRY THICKNESS, WELD ¾" THICK CONTINUOUS PLATE TO BEAM FLANGE ½" NARROWER THAN MASONRY.

- FRAMING CONNECTIONS & TIE DOWNS ARE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS SPECIFICALLY DETAILED ON THIS DRAWING. CONTRACTOR SHALL FASTEN ALL WOOD MEMBERS WITH COMMON NAILS ACCORDING TO THE IBC SCHEDULE TABLE 2304.10.1 UNLESS NOTED OTHERWISE. CONTRACTOR WILL CONNECT STRUCTURAL STEEL UTILIZING ESTABLISHED METHODS AS OUTLINED IN AISC "MANUAL OF STEEL CONSTRUCTION".

- STRUCTURAL STEEL (CONTINUED):

SUBMIT DESIGN CALCULATIONS, BEARING THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO, AND EMPLOYED BY THE STEEL FABRICATOR, FOR ALL CONNECTIONS NOT COMPLETELY DETAILED ON THESE STRUCTURAL DRAWINGS AND FOR ANY PROPOSED ALTERNATE CONNECTION DETAILS.

ALL WELDERS SHALL HAVE EVIDENCE OF PASSING THE AMERICAN WELDING SOCIETY STANDARD QUALIFICATIONS TESTS AS OUTLINED IN AWS-D11.

MINIMUM WELDS ARE TO BE PER AISC TABLE 12.4 BUT NOT LESS THAN ¾" CONTINUOUS FILLET UNLESS NOTED OTHERWISE.

THE TERMINOLOGY "CONTINUOUS" MEANS QUANTITY. PROVIDE THE NECESSARY JOINT DETAILS TO ALLOW FOR BUILDING MOVEMENT.

COORDINATE LOCATIONS WITH ARCHITECTURAL, MECHANICAL CONTROLS & EXPANSION JOINTS.

PROVIDE ANCHOR BOLTS FOR BEAMS AND SILL PLATES THAT BEAR ON CONCRETE OR MASONRY WALLS AS REQUIRED.

STEEL FABRICATOR SHALL NOT RECEIVE ADDITIONAL COMPENSATION FOR SHOP DRAWING THE FOR ANY REVISIONS OF ERECTION DRAWINGS NOR FOR ANY REVISIONS TO PIECE DRAWINGS PRIOR TO ENGINEER'S APPROVAL OF ERECTION DRAWINGS.

WHENEVER MASONRY RESTS ON STEEL BEAM BEAMS WITH FLANGES NARROWER THAN THE ACTUAL MASONRY THICKNESS, WELD ¾" THICK CONTINUOUS PLATE TO BEAM FLANGE ½" NARROWER THAN MASONRY.

FRAMING CONNECTIONS & TIE DOWNS ARE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS SPECIFICALLY DETAILED ON THIS DRAWING. CONTRACTOR SHALL FASTEN ALL WOOD MEMBERS WITH COMMON NAILS ACCORDING TO THE IBC SCHEDULE TABLE 2304.10.1 UNLESS NOTED OTHERWISE. CONTRACTOR WILL CONNECT STRUCTURAL STEEL UTILIZING ESTABLISHED METHODS AS OUTLINED IN AISC "MANUAL OF STEEL CONSTRUCTION".

Structural Services Inc.,
 email=info@structural.com,
 P.E. =Innovative
 Darren P. E.
 13719 W. Arapahoe Way
 Lakewood, CO 80228
 Phone: (303) 359-6678
 FAX: (303) 948-1949
 WEBSITE: www.innovativestructural.com

Digitally signed by Darren P. E.
 DN: cn=Darren P. E., o=Innovative
 email=info@structural.com, c=US
 Date: 2021.07.15 08:26:58 -0600

SLOPE DRAWING REVIEW

- Reviewed
- Not Reviewed
- Requested
- Not Reviewed/Outside Scope of Services **NO STRUCTURAL DESIGN REVIEW**
- Revisions and Resubmit
- Revisions and Resubmit

Review performed to determine general conformance with the design criteria and to identify any errors or omissions. This review does not constitute a guarantee of the accuracy of the design or the contractor's responsibility for means, methods, sequencing, scheduling of work, verification of quantities and comments on the slope drawings will release the contractor from performing the work in a manner consistent with the contract documents.

Maintained Consulting
 By: Anita S. Drukker, P.E. Date: 7-15-21

DRAWING STATUS:

PRELIMINARY DETAILS ONLY - NOT FOR CONSTRUCTION

ISSUED FOR INFORMATION PURPOSES ONLY

ISSUED FOR MUNICIPALITY OR ARCH. / ENG. APPROVAL

ISSUED FOR OWNER OR CONTRACTOR APPROVAL

ISSUED FOR CONSTRUCTION

DESTROY ALL PREVIOUS COPIES

ISSUED BY: D.L.D. DATE: 7/14/2021

APPROVED BY: _____ DATE: _____

REVISIONS:

NO.	DESCRIPTION	BY	APPROVED	DATE

7/14/2021

INNOVATIVE STRUCTURAL SERVICES INC.

13719 W. Arapahoe Way
 Lakewood, CO 80228
 Phone: (303) 359-6678
 FAX: (303) 948-1949
 WEBSITE: www.innovativestructural.com

FOR: **INNOVATIVE CUSTOMER**

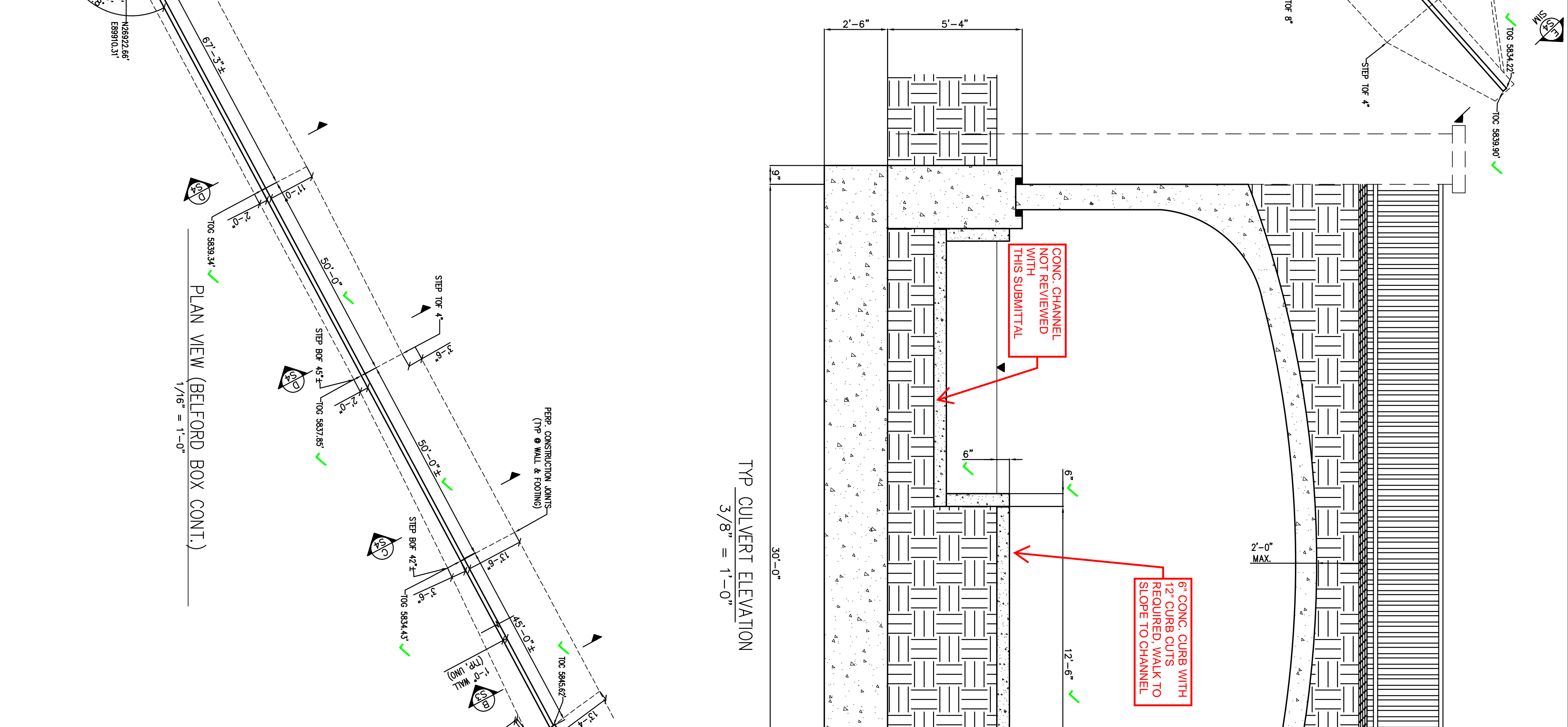
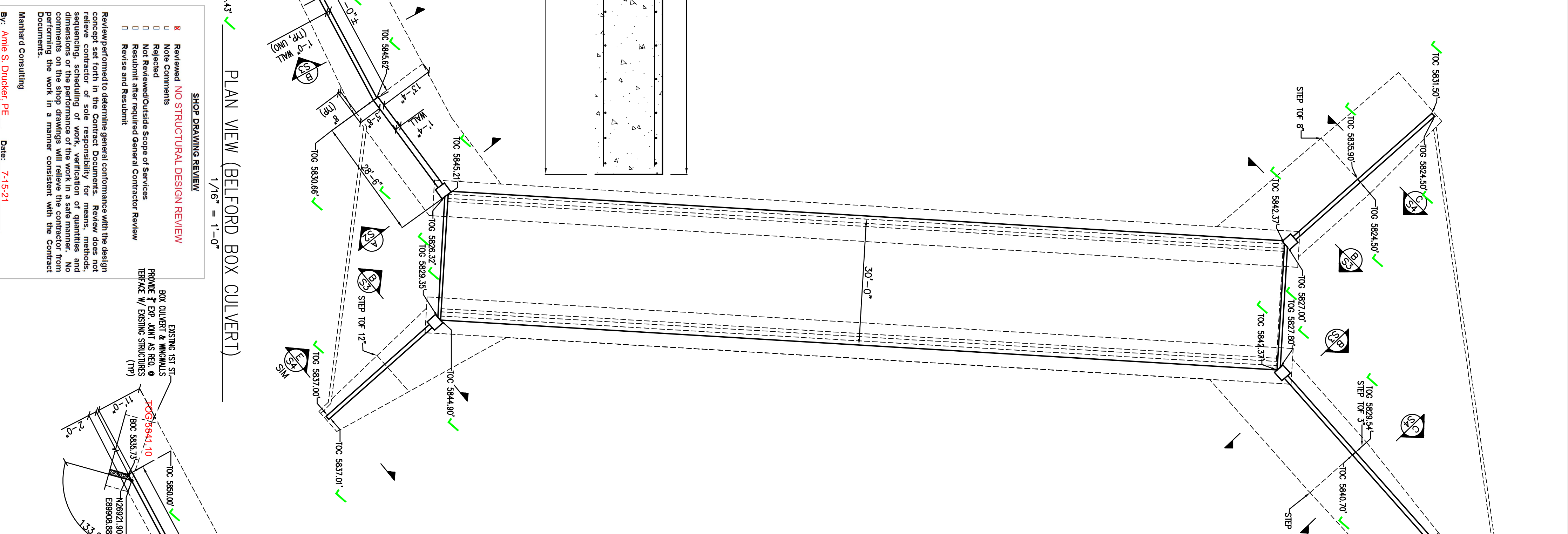
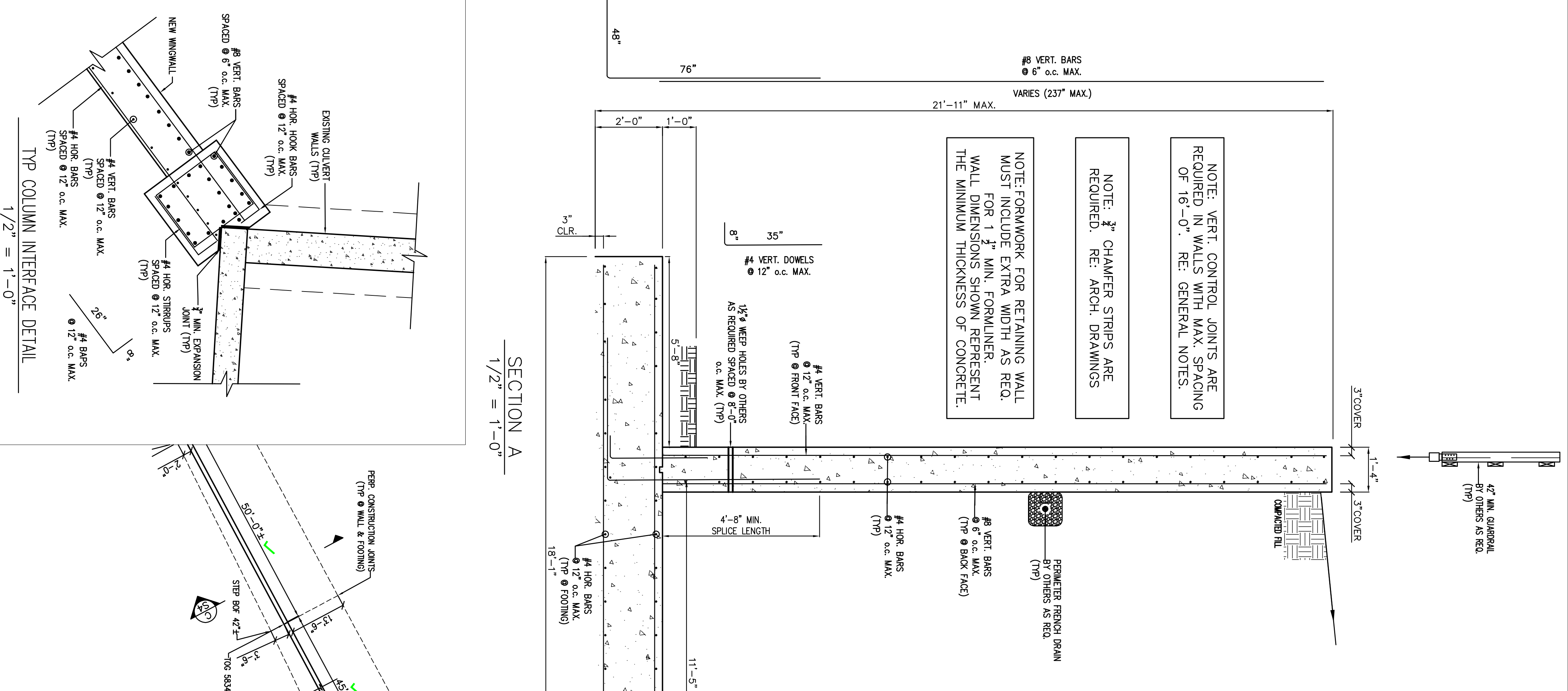
CONTRACTOR: _____

PROJECT: _____

LOCATION: _____

DRAWN: D.L.D. DATE: 07/11 DRAWING NO: 206-0 SHEET NO: 1 OF

APPROVED: _____ DATE: _____



NOTE:
 REFERENCE SHEET #1 FOR GENERAL NOTES.

DRAWING STATUS:

- PRELIMINARY DETAILS ONLY - NOT FOR CONSTRUCTION
- ISSUED FOR INFORMATION PURPOSES ONLY
- ISSUED FOR MUNICIPALITY OR ARCH. / ENG. APPROVAL
- ISSUED FOR OWNER OR CONTRACTOR APPROVAL
- ISSUED FOR CONSTRUCTION
- DESTROY ALL PREVIOUS COPIES

ISSUED BY: D.L.D. DATE: 7/14/2021
 APPROVED BY: _____ DATE: _____
 RECEIVED BY: _____ DATE: _____

NO.	DESCRIPTION	BY	APPROVED	DATE

FOR:

CONTRACTOR: IRON MOKYAN CONSTRUCTION

PROJECT: NEW RETAINING & WING WALLS

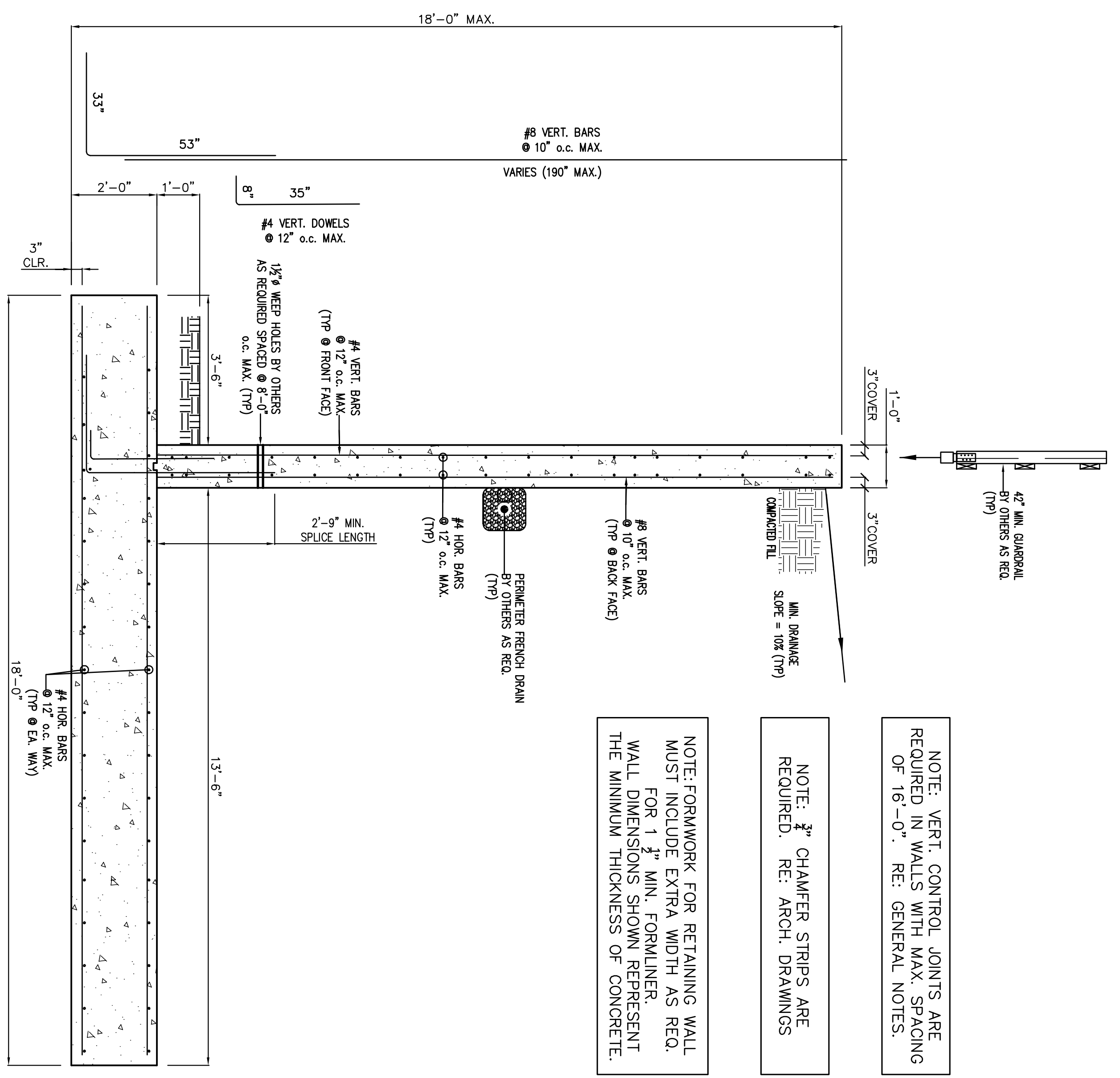
LOCATION: PARKER CO

ADD NEW CAST IN PLACE RETAINING WALLS & BOX CULVERT WING WALLS

INNOVAT IVE STRUCTURAL SERVICES INC.
 13719 W. Amberst Way
 Lakewood, CO 80228
 Phone: (303) 358-4578
 FAX: (303) 948-1949
 WEBSITE: www.innovativestructural.com

DRAWN: D.L.D. DATE: 7/14/21 DRAWING NO: 2020-218 SHEET NO: 52

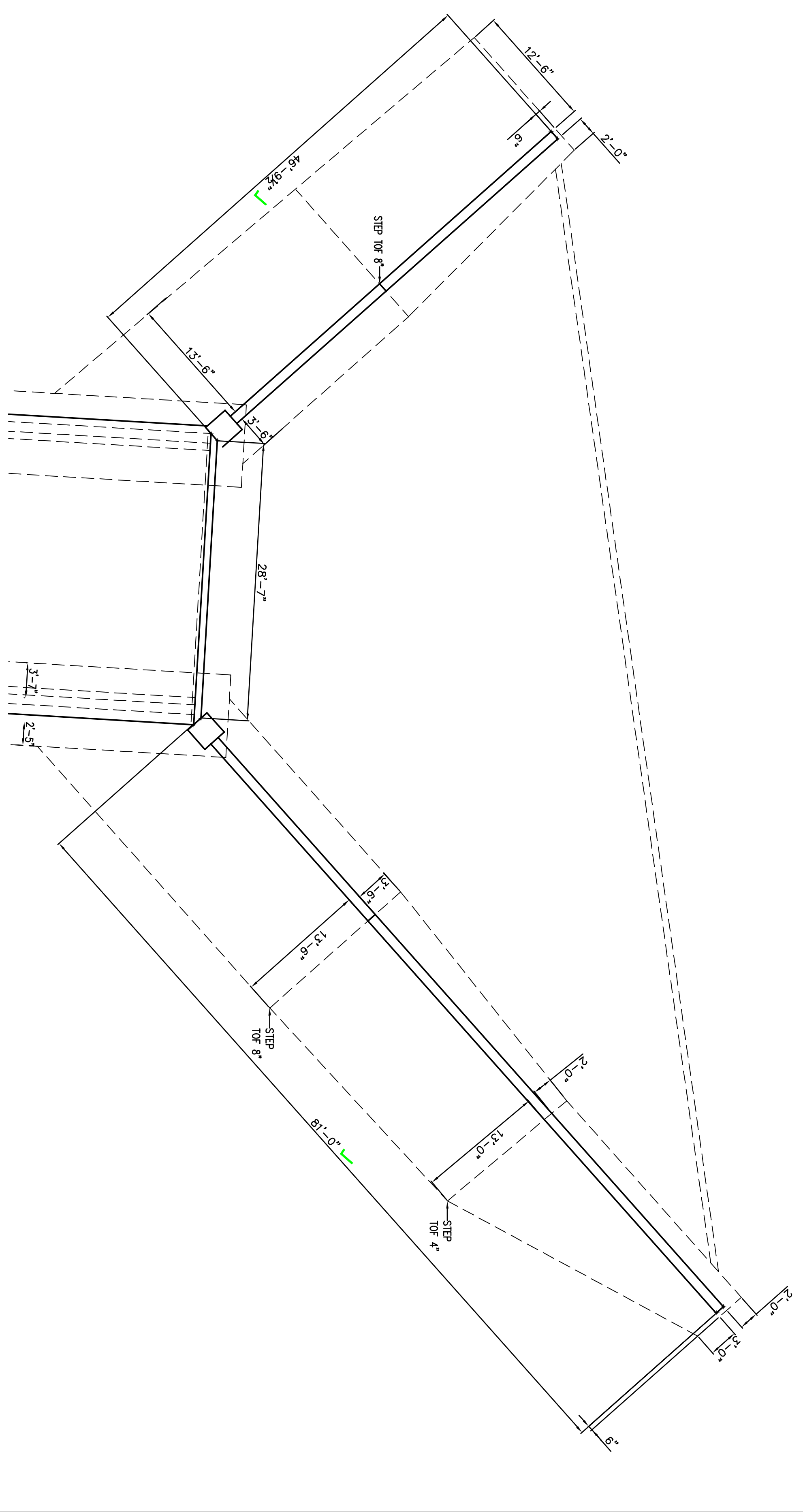
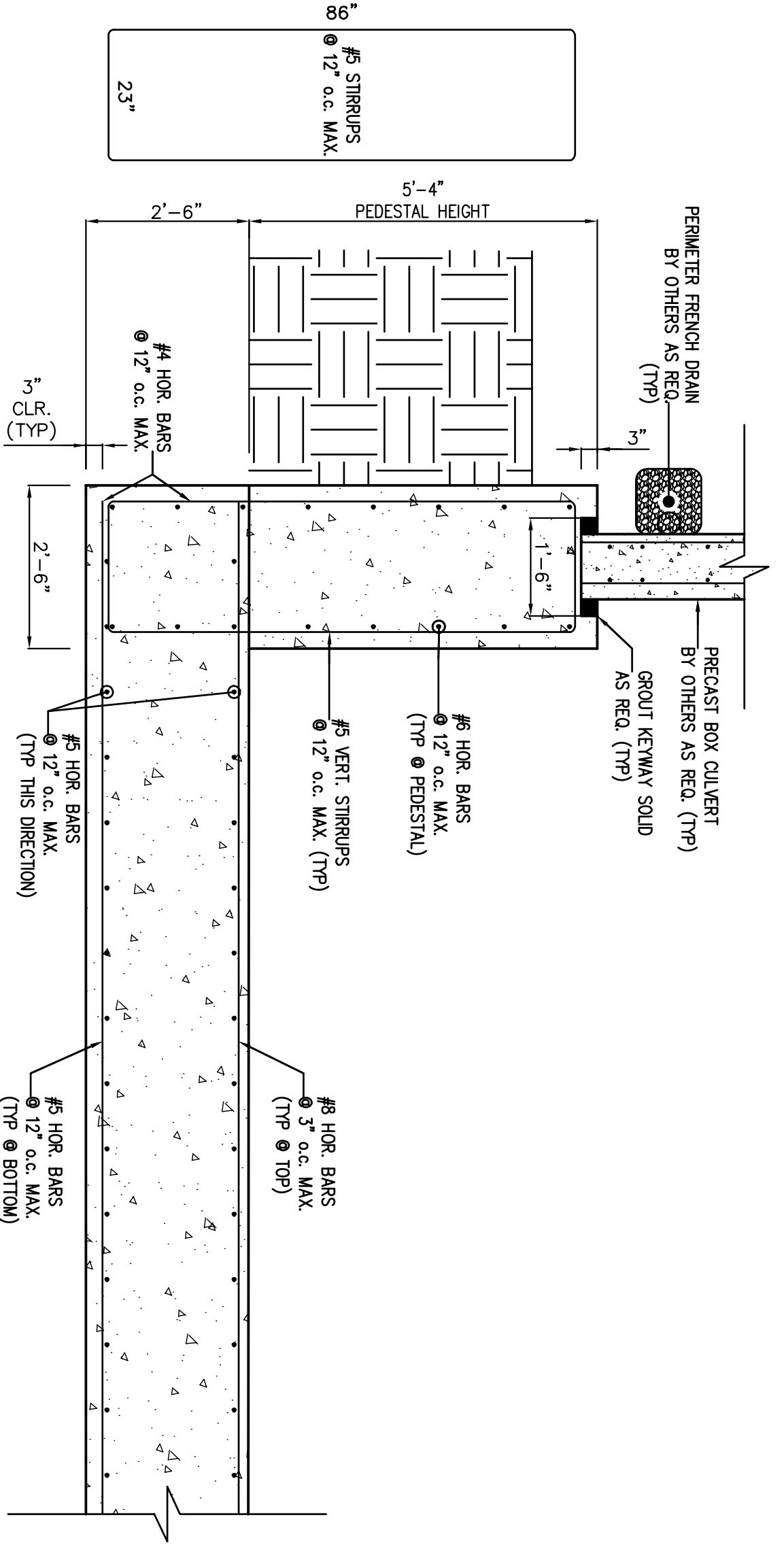
APPROVED: _____ DATE: _____



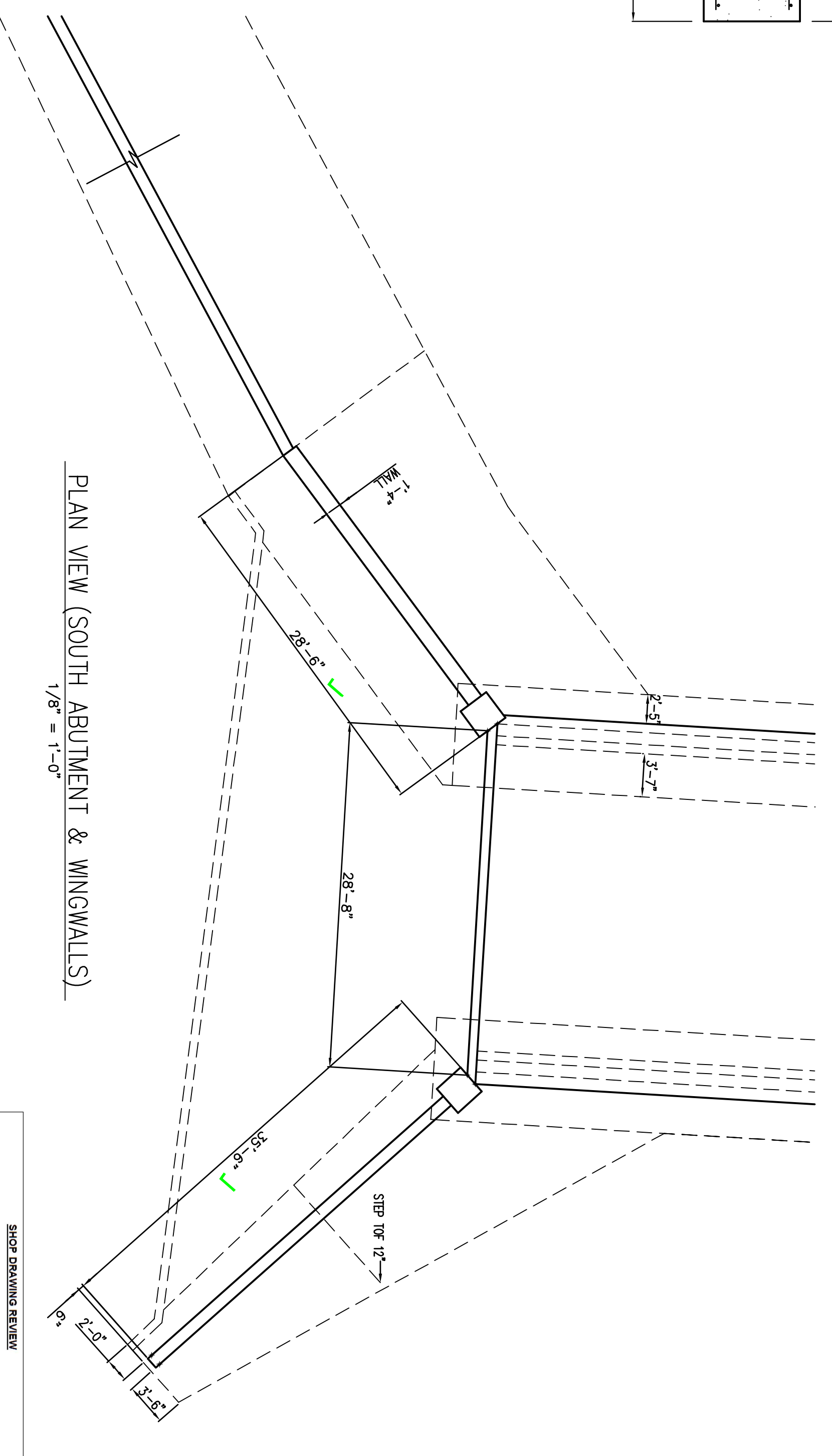
NOTE: VERT. CONTROL JOINTS ARE REQUIRED IN WALLS WITH MAX. SPACING OF 16'-0". RE: GENERAL NOTES.

NOTE: 3" CHAMFER STRIPS ARE REQUIRED. RE: ARCH. DRAWINGS

NOTE: FORMWORK FOR RETAINING WALL MUST INCLUDE EXTRA WIDTH AS REQ. FOR 1 1/2" MIN. FORMLINER. WALL DIMENSIONS SHOWN REPRESENT THE MINIMUM THICKNESS OF CONCRETE.

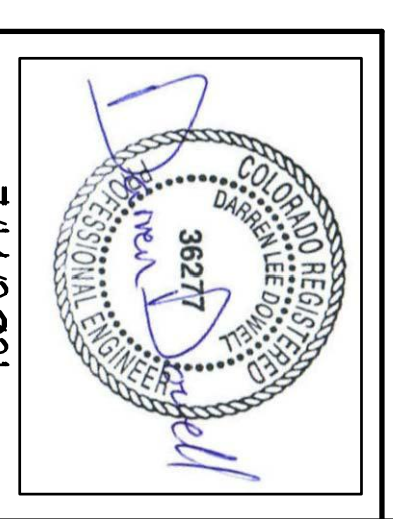


PLAN VIEW (NORTH ABUTMENT & WINGWALLS)
1/8" = 1'-0"



PLAN VIEW (SOUTH ABUTMENT & WINGWALLS)
1/8" = 1'-0"

NOTE: REFERENCE SHEET #1 FOR GENERAL NOTES.



- DRAWING STATUS**
- PRELIMINARY DETAILS ONLY - NOT FOR CONSTRUCTION
 - ISSUED FOR INFORMATION PURPOSES ONLY
 - ISSUED FOR MUNICIPALITY OR ARCH. / ENG. APPROVAL
 - ISSUED FOR OWNER OR CONTRACTOR APPROVAL
 - ISSUED FOR CONSTRUCTION
 - DESTROY ALL PREVIOUS COPIES

ISSUED BY: DATE: 1/14/2021
 APPROVED BY: DATE:

NO.	DESCRIPTION	BY	APPROVED	DATE

FOR: **IRON MOTAN CONSTRUCTION**

CONTRACTOR: **IRON MOTAN CONSTRUCTION**

PROJECT: **NEW RETAINING & WING WALLS**

LOCATION: **PARKER CO**

ADD NEW CAST IN PLACE RETAINING WALLS & BOX CULVERT WINGWALLS

INNOVAT IVE STRUCTURAL SERVICES INC.
 13719 W. Ambrose Way
 Lakewood, CO 80228
 Phone: (303) 358-4678
 FAX: (303) 948-1949
 WEBSITE: www.innovativestructural.com

MANHARD CONSULTING
 By: **Annie S. Drucker, PE** Date: **1/15/21**

SHOP DRAWING REVIEW

- Approved** NO STRUCTURAL DESIGN REVIEW
- Note Checked
- Rejected
- Not Reviewed/Outside Scope of Services
- Revisions/Not Required General Contractor Review
- Review and Resubmit

Reviews performed to determine general conformance with the design relative contractor of sole responsibility for means, methods, sequencing, scheduling of work, verification of quantities and comments on the shop drawings will relieve the contractor from performing the work in a manner consistent with the contract.

DRAWN: **D.L.D.** DATE: **1/21** DRAWING NO: **2020-218**
 APPROVED: **9.B.** DATE: SHEET NO: **53**

