

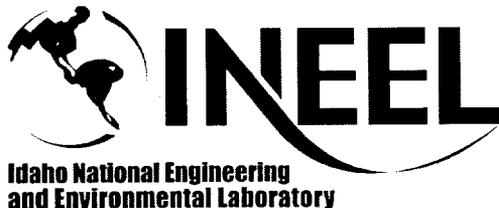
A-E CONSTRUCTION SPECIFICATION

PROJECT FILE NO. 021052

OU 7-10 GLOVEBOX EXCAVATOR METHOD PROJECT

Facility Floor Structure Fabrication

Prepared for:
U.S. Department of Energy
Idaho Operations Office
Idaho Falls, Idaho



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DOCUMENT MANAGEMENT CONTROL SYSTEM (DMCS) DOCUMENT APPROVAL SHEET

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 5. Author: Scott A. Jensen, P. E. 5. Owner: Scott A. Jensen, P. E.
 7. Comments: _____

REVIEW AND APPROVAL SIGNATURES
Denote R for review concurrence, A for approval, as appropriate.

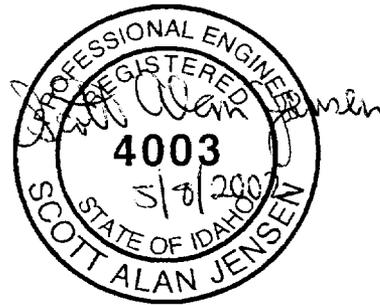
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DOCUMENT MANAGEMENT CONTROL SYSTEM (DMCS) DOCUMENT APPROVAL SHEET



Project Title: **OU 7-10 Glovebox Excavator Method FFS Fabrication**
Document Type: **Construction Specification** Project Number: 021052
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1 SECTION 01005--SUMMARY OF WORK

2
3 PART 1--GENERAL

4
5 SUMMARY:

6
7 The Subcontractor shall furnish plant, labor, material, equipment, and supplies and perform
8 work and operations necessary to fabricate the OU 7-10 Glovebox Excavator Method Facility
9 Floor Structure (FFS) complete, in accordance with the subcontract drawings and these
10 specifications.

11
12 Work Includes, but is not limited to:

- 13
14 1. Structural steel procurement and fabrication for the FFS and shoring box as shown on
15 the drawings.
16 2. Steel decking and floor plate procurement and fabrication for the FFS as shown on the
17 drawings.

18
19 Work Not Included: The Subcontractor is not responsible for the erection or installation of
20 the structural steel, steel decking and floor plate for the FFS.

21
22 REFERENCES:

23
24 The following documents, including others referenced therein, form part of this Section to the
25 extent designated herein.

- 26
27 CODE OF FEDERAL REGULATIONS (CFR)
28 29 CFR 1926 OSHA Health and Safety Standards for Construction

29
30 Unless otherwise specified, references in these specifications or on the subcontract drawings
31 to other specifications, codes, standards or manuals that are part of these specifications, but
32 not included herein, shall be the latest edition, including any amendments and revisions, in
33 effect as of the date of this Specification.

34
35 SUBMITTALS:

36
37 Submittals include, but are not limited to the following:

38
39 Hazardous Chemicals and Substances: Subcontractor shall submit a list of hazardous
40 chemicals and substances in accordance with the Subcontract for mandatory approval.

41
42 QUALITY ASSURANCE:

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1 Quality Assurance Program requirements shall exist to assure that work performed is in
2 conformance with the requirements established by the drawings and this specification. QA
3 Program criteria applicable to this scope of work is addressed in the Subcontract and these
4 specifications.

5
6 Standard Products: The materials and equipment furnished by the Subcontractor shall be
7 standard products of manufacturers regularly engaged in the production of the type of
8 materials and equipment required and shall be of the manufacturer's latest standard designs.
9 Where two or more units of the same type and class of material or equipment are required,
10 the units shall be the product of the same manufacturer, and shall be identical insofar as
11 possible. The component parts of a unit of equipment need not be the products of the
12 manufacturer.

13
14 SAFETY, HEALTH AND ENVIRONMENT:

15
16 In general work shall be in compliance with the applicable sections of 29 CFR 1926.

17
18 DELIVERY, STORAGE AND HANDLING:

19
20 All materials normally packaged shall be delivered to the site in the original, unopened
21 packages with labels intact. Upon arrival, the Subcontractor shall inspect the materials or
22 equipment for damage.

23
24 Materials and equipment shall be stored and handled in accordance with the manufacturer's
25 instructions. Protect construction materials, equipment, flange facings, threads, machined or
26 painted, and other exposed finished surfaces from damage.

27
28 PART 2--PRODUCTS

29
30 MATERIALS:

31
32 New Materials and Equipment: Materials and equipment received by the Subcontractor in a
33 damaged condition shall be repaired or replaced by the Subcontractor as directed by the
34 Contractor. Materials and equipment damaged by the Subcontractor shall be repaired or
35 replaced by the Subcontractor.

36
37 Approved Equal: Whenever a product is specified by using a proprietary name, the name of a
38 manufacturer, or vendor, the specific item mentioned shall be understood as establishing
39 type, function, dimension, and quality desired. Other manufacturer's products will be
40 accepted, provided sufficient information is submitted to determine that products proposed
41 are equivalent to those named.

42
43 Hazardous Chemicals and Substances: The Subcontractor shall comply with applicable
44 requirements of 29 CFR 1926.59, Hazard Communication Standard.

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PART 3--EXECUTION

CONSTRUCTION AND INSTALLATION:

General: Materials shall be fabricated only by qualified personnel who are regularly engaged in the trades required to complete the work. It shall be the Subcontractor's responsibility to verify changes in conditions or rearrangements necessary because of substitutions for specified materials. Where rearrangements are necessary the Subcontractor shall, before construction or installation, prepare and submit drawings of the proposed rearrangement for approval.

Workmanship: Work shall be done in a skillful and workmanlike manner. No major cuts or holes, not shown on the drawings, shall be made without prior approval of the Contractor.

REPAIR AND RESTORATION:

Materials and equipment repaired or replaced by the Subcontractor shall be subject to acceptance by the Contractor.

END OF SECTION 01005

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1 SECTION 01300--SUBMITTALS

2

3 PART 1--GENERAL

4

5 SUMMARY:

6

7 This section specifies the administrative, technical and quality requirements for Vendor Data
8 submittals. Vendor Data requirements are specified in individual specification sections or on
9 the drawings, and tabularized on a Vendor Data Schedule. In the event of conflicting
10 requirements, the submittal requirements prescribed in the individual specification section
11 shall prevail.

12

13 The Subcontractor shall submit data, drawings, and other submittals specified. If the
14 Contractor determines the Subcontractor's submittal to be incomplete or unacceptable, the
15 Subcontractor shall make a complete and acceptable submittal to the Contractor by the
16 second submission of a submittal item.

17

18 The Subcontractor shall be responsible for advising the Contractor of any submittal that may
19 be delayed and which might, if further delayed, extend completion of the project.

20

21 Section Includes, but is not limited to: The preparation, transmittal and delivery of
22 documents by the Subcontractor to the Contractor as required in the "Submittals" subdivision
23 of the specification sections and as provided on the Vendor Data Schedule.

24

25 Related Sections: General Provisions, Drawings, Vendor Data Schedule, and other sections
26 of these specifications apply to this section.

27

28 REFERENCES:

29

30 The following documents, including others referenced therein, form part of this Section to the
31 extent designated herein:

32

33 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

34

35 ANSI Y14.1 Drawing Sheet Size and Format

36

37 SUBMITTALS:

38

39 General Procedures: Vendor data, whether prepared by the Subcontractor or Subcontractor's
40 subtier or supplier, shall be submitted as instruments of the Subcontractor. Therefore, prior
41 to submittal, the Subcontractor shall ascertain that material and equipment covered by the
42 submittal and the contents of the submittal itself, meet all the requirements of the subcontract
43 specifications, drawings, or other subcontract documents.

44

1 Each submittal shall contain identification for each separable and separate piece of material
2 or equipment, and literature with respect to the information provided in the specification and
3 on the Vendor Data Schedule. Submittals shall be numbered consecutively for each different
4 submittal.

5
6 Vendor Data Schedule: Vendor Data required by the specification sections or the drawings to
7 support design, construction, and operation of the project is identified on a Vendor Data
8 Schedule. The Vendor Data Schedule provides a tabular listing by item number, drawing or
9 specification reference, and description of the item or service. The type of submittal is
10 identified by a "Vendor Data Code", and the time required to submit the item is identified by
11 a "When to Submit" code. An "Approval" code specifies whether the submittal is for
12 Mandatory Approval or for Information Only. One copy of routine paper or electronic file
13 submittals are required; additional copies may be required by the Vendor Data Schedule.
14 Electronic file submittals are preferred. Submittals that cannot be scanned or provided
15 electronically, such as material samples, will require 6 copies for Mandatory Approval and 4
16 copies for Information Only.

17
18 Or Equal Material or Equipment Submittals: All "or equal" materials, equipment or systems
19 shall be identified and submitted for approval as required by the Subcontractor Requirements
20 Manual.

21
22 An "or equal" submittal shall contain as a minimum all operating and physical parameters
23 necessary to show that the material or equipment is equivalent to the specified material or
24 equipment. All parameters shall be specifically identified by the submitter in the proposal.
25 Exceptions or differences between the specified item and the "or equal" item shall also be
26 identified.

27
28 If an "or equal" material, equipment or system is approved, the Subcontractor shall be
29 responsible for backup material necessary to include the material, equipment or system in the
30 technical documents. In most cases this includes "red lining" a set of design drawings, and
31 specifications to provide an "Approved for Construction" set of specifications and design
32 drawings which incorporate the changes caused by the "or equal" item. These "red line"
33 drawings shall be submitted prior to use of the "or equal" item. Any calculations or other
34 backup material necessary to show that changes are adequate shall be included with the "red
35 line" drawings and specifications.

36
37 Vendor Data Transmittal and Disposition Form: All vendor data shall be submitted to the
38 Contractor using the Vendor Data Transmittal and Disposition Form. The form provides the
39 Subcontractor a convenient method to submit vendor data and provides the Contractor a
40 means to disposition the submittal. The Subcontractor shall list the Vendor Data Schedule
41 item number, a Vendor Data Transmittal tracking number (if applicable), the drawing or
42 specification number reference, a Tag Number (if applicable), the submittal status (e.g.,
43 Mandatory Approval, Information Only, Re-submittal, or Or-equal), the Revision Level, and
44 the item Description. The description should include the heat or lot number for items

1 requiring Certified Mill Test Reports.

2
3 Disposition by the Contractor: The Contractor's comments and required action by the
4 Subcontractor will be indicated by a disposition code on the submittal. The disposition codes
5 will be classed as follows:

6
7 (A) "Work May Proceed." Submittals so noted will generally be classed as data that
8 appears to be satisfactory without corrections.

9
10 (B) "Work May Proceed with Comments Incorporated. Revise Affected Sections and
11 Resubmit." This category will cover data that, with the correction of comments
12 noted or marked on the submittal, appear to be satisfactory and require no further
13 review by the Contractor prior to construction.

14
15 (C) "Work May NOT Proceed. Revise and Resubmit." Submittals so dispositioned
16 will require a corrected resubmittal for one of the following reasons:

- 17 1) Submittal requires corrections, per comments, prior to final review.
18 2) Submittal data incomplete and requires more detailed information prior to
19 final review.
20 3) Submittal data does not meet Subcontract document requirements.

21
22 (D) "Accepted for Use. Information Only Submittal." Submittals so dispositioned
23 will generally be classified as Information Only for as-specified material and
24 equipment.

25
26 Mandatory Approval coded vendor data will be reviewed by the Contractor and receive an A,
27 B, or C disposition. Information Only submittals without comments will receive a D
28 disposition. A, B, and C coded dispositioned submittals will be returned to the
29 Subcontractor. D dispositioned submittals will not be returned to the Subcontractor. The
30 Contractor may provide internal review of Information Only submittals. In the event that
31 comments are generated on an Information Only submittal, the submittal may be
32 dispositioned B or C and returned to the Subcontractor for appropriate action.
33 Acknowledgment of receipt of dispositioned vendor data by the Subcontractor will not be
34 required.

35
36 The Contractor will return dispositioned submittals with reasonable promptness. The
37 Subcontractor shall note that a prompt review is dependent on timely and complete
38 submittals in strict accordance with these instructions.

39
40 PART 2--PRODUCTS (SUBMITTAL REQUIREMENTS)

41
42 CERTIFIED MILL TEST REPORTS:

43

1 Where specifically required by other sections, certified mill test reports (CMTRs) shall be
2 provided. The CMTRs shall be issued from the manufacturer who actively produces the
3 item(s) and/or material to which the CMTR applies or a certified test laboratory. Each
4 CMTR shall include the following:

- 5
- 6 1. Applicable codes and standards (such as ASTM or ASME) for the item(s) and/or
7 material to which the CMTR applies.
- 8 2. General description of the item(s) and/or material to which the CMTR applies.
- 9 3. Heat or lot number of the item(s) and/or material to which the CMTR applies.
- 10 4. Actual chemical composition and the physical characteristics of the item(s) and/or
11 material to which the CMTR applies. The physical characteristics noted shall include
12 ultimate tensile strength, yield strength and elongation as a minimum. Reporting of
13 physical characteristics is not required in the case of weld filler material unless
14 otherwise noted in the applicable specification subdivision.
- 15 5. Signature and organizational title of the individual authorized to certify the accuracy
16 of the data indicated on the CMTR for the item(s) and/or material shown.

17
18 INSPECTION AND TEST PROCEDURES:

19
20 Where specifically required by other sections, inspection and test procedures shall be
21 provided. Inspection and test procedures shall include, as applicable: description of item or
22 items involved, inspection or testing to be performed, a listing of testing agency and technical
23 personnel to be used, description of equipment and facilities to be used, test prerequisites, test
24 methods, test evaluation and acceptance criteria, safety precautions, sign-off requirements,
25 methods for control and calibration of measuring and test equipment, proposed test record
26 form, references to applicable portions of the subcontract documents, and detailed
27 procedures, methods, and criteria for evaluation and acceptance. Test procedures shall be
28 prepared in accordance with the Subcontract Requirements Manual, PRD-5014 "Test
29 Control".

30
31 INSPECTION AND TEST REPORTS:

32
33 Where specifically required by other sections, inspection and test reports shall be provided
34 within 10 working days of such inspection or test. Inspection and test reports shall include,
35 as applicable: identification of material or item inspected, inspection data, functional test
36 data, date(s) and place(s) of inspection/tests, names of agencies and technicians involved,
37 references to procedures and methods used, references to applicable portions of the
38 subcontract documents, names of persons evaluating test results, identification of work
39 failing to meet inspection/test acceptance criteria, and detailed description of corrective
40 action taken. Test reports shall be provided in accordance with the Subcontract
41 Requirements Manual, PRD-5014 "Test Control".

42
43 INSTALLATION, APPLICATION, AND ERECTION INSTRUCTIONS:

1
2 Installation, application, and erection instructions shall be provided where specifically
3 required by other sections. Installation, application, and erection instructions shall be clear,
4 concise, and detailed, and shall utilize drawings and pictures to the extent necessary. The
5 instructions shall include procedures for delivery acceptance, unpacking, inspection, re-
6 packing, storage, handling, preparation of supporting work, assembly, and incorporation of
7 the material/equipment into the work. The instructions shall include sequences, precautions,
8 and tolerances.

9
10 In general, the Contractor's Representative will inspect the work to the criteria and
11 instructions prescribed in the manufacturer's installation, application and erection
12 instructions. The Subcontractor shall not deviate from the written instructions without prior
13 written approval and direction from the manufacturer; such approval and direction shall be
14 submitted to the Contractor as an attachment to the manufacturer's installation, application
15 and erection instructions.

16
17 MATERIAL AND EQUIPMENT LISTS:

18
19 Where specifically required by other subdivisions, material and equipment lists shall be
20 provided. Material and equipment lists shall be complete for the work specified under the
21 subdivision and shall include all materials, products, equipment, and fixtures, including
22 consumables. Lists shall include manufacturer's name and address, trade or brand name,
23 local supplier's name and address, unit quantities, and catalog numbers required to fully
24 describe the item.

25
26 PRODUCT DATA:

27
28 Where specifically required by other sections, product data shall be provided. Product data
29 shall include descriptive material, such as catalog data, diagrams, color charts, and other data
30 published by the manufacturer, as well as evidence of compliance with safety and
31 performance standards. To demonstrate conformance to the specified requirements; catalog
32 numbers alone will not be acceptable. The data shall include the name and address of the
33 nearest service and maintenance organization that regularly stocks repair parts.

34
35 Product data submittals shall reference the applicable subdivision and drawings, and be
36 complete for each item or unit of work.

37
38 SAMPLES:

39
40 Where specifically required by other sections, samples shall be provided. Samples shall be
41 identical with final condition of materials or products proposed for the work. Two full sets of
42 optional samples shall be provided when required. Information shall be provided with each
43 sample to show generic description, source or product name and manufacturer, limitations,
44 and compliance with standards. If requested by the Subcontractor, one sample set may be

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1 returned to be incorporated in the work. If incorporated into the work such sample shall be
2 labeled in an approved manner and the installed location recorded on "Redline" drawings.

3
4 SHOP DRAWINGS:

5
6 Where specifically required by other sections, shop drawings shall be provided. Each shop
7 drawing submittal shall be complete and shall be accompanied by technical and performance
8 data as necessary to fully illustrate the information in the shop drawings, or cross referenced
9 to such data contained in previous submittals. Unless otherwise specified, submittals shall
10 consist of black-line printed copies. Hard copies and an electronic copy shall be submitted
11 where required by other specification sections. Electronic copies of CAD generated drawings
12 shall be provided in a form that will transfer to the Contractor's software using IGES or
13 custom software provided by the Subcontractor. Sepia type prints are not acceptable. One
14 set of copies will be returned to the Subcontractor marked to show the required corrections or
15 approval.

16
17 The tag number indicated on the design drawings shall identify all equipment or other devices
18 on the shop drawings. The Subcontractor shall identify all equipment and devices with tags
19 or labels in accordance with the requirements specified in the respective subdivision.

20
21 The following additional submittals shall be required as indicated on the Vendor Data
22 Schedule:

23
24 "Redline" Drawings: Copies of the shop drawings shall be updated to include all
25 changes or modifications made during construction and to reflect the actual conditions
26 of construction. Each drawing shall be marked "As-Built" and be signed by the
27 Subcontractor representative and shall be suitable for XEROX copying or microfilming.

28
29 Title Block and Identification: On each shop drawing, a 1-1/2 x 2-1/2 in. space shall be
30 provided for the Contractor's review status stamp. Each shop drawing shall include a title
31 block showing:

- 32
33 1. Project name and location.
34 2. Name and address of Subcontractor or manufacturer as applicable.
35 3. Date, scale of drawings, unique drawing identification number, and referenced design
36 drawing number.
37 4. Subcontractor's review and approval stamp or signatures.
38 5. Revision record including signatures and dates.

39
40 Preparation and Size: Details and information shall be clearly drawn, dimensioned (including
41 tolerances), noted, cross referenced and shall be of such quality as to ensure legible B (11 x
42 17 in.) size photocopy reproductions from microfilm (by others). Drafting and drawing

1 standards shall be consistent with the practices established by ANSI Y14.1 or other
2 acceptable standards and as specified herein:

3
4 Where applicable, views shall be oriented so that plant north faces to the left or up.

5
6 Use of abbreviations shall be avoided where space permits spelling in full; if used,
7 abbreviations shall be described in a legend on the drawing.

8
9 Types: Shop drawings shall be of the specific types specified in the respective subdivisions.
10 If a specific type is not specified, drawing shall be the type most commonly required for the
11 specific class of work subject to the Contractor's approval. The most commonly required
12 types of shop drawings and drawing content (as applicable) are described hereinafter.

13
14 Detail Drawings: Shall consist of dimensioned fabrication and assembly drawings for all
15 parts of the work in such detail to enable the Contractor to check conformity with the
16 contractual requirements.

17
18 Fabrication, Erection, and Installation Drawings: Shall indicate equipment arrangement
19 and shall include dimensions, elevations, sections, and enlarged details showing proper
20 methods of field fabrication, construction, and installation.

21
22 CALCULATIONS:

23
24 Where specifically required by other sections, calculations shall be provided. Engineering
25 calculations and analyses shall be fully checked by a qualified individual other than the
26 originator, and shall be signed and dated as checked. All final submittals of calculations shall
27 be bound and shall include the title and purpose of the calculation, a table of contents or
28 index, complete list of references, design basis and complete list of assumption (if any),
29 methodology, and sufficient information to allow independent verification of the calculation.

30
31 Calculations which are performed by computer or with computer assistance shall include a
32 description of the hardware and software used, a description of the model employed if
33 applicable, verification documentation for the computer program, and a copy of the computer
34 input and output. All revisions to submitted calculations, as a result of comments by the
35 Contractor or design changes by the Subcontractor, however minor, shall be resubmitted.

36
37 SPECIAL PACKAGING, HANDLING, OR STORAGE PROCEDURES:

38
39 Where specifically required by other sections, special packaging, handling, rigging, shipping,
40 storage, or preservation procedures shall be provided. These procedures shall contain the
41 following minimum requirements as applicable:

- 42
43 1. Measures taken to prevent damage during transit.
44 2. Detailed description of container design.

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- 1 3. Overall dimensions and approximate weight of container and contents.
- 2 4. Recommended method for off-loading.
- 3 5. List of required special off-loading devices.
- 4 6. Special instruction for proper packaging and preventative maintenance during storage
- 5 at the site.
- 6 7. Special instructions for marking.
- 7 8. Safety code labels, if applicable.

8

9

INTEGRATED MANUFACTURING, INSPECTION, AND TEST PLAN:

10

11

12

13

14

15

16

17

PART 3--EXECUTION (NOT APPLICABLE)

18

19

END OF SECTION

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1 SECTION 05060--STRUCTURAL WELDING

2
3 PART 1--GENERAL

4
5 SUMMARY:

6
7 Section Includes, but is not limited to:

8
9 All shop structural welding on carbon steel and stainless steel.

10
11 Work Not Included: The Subcontractor is not responsible for field welding or field welding
12 filler materials.

13
14 Related Sections: 05100 Structural Steel and Miscellaneous Metals
15 05101 Stainless Structural Steel

16
17 REFERENCES:

18
19 The following documents, including others referenced therein, form part of this Section to the
20 extent designated herein.

21
22 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

23
24 AISC (ASD) Specification for Structural Steel Buildings-Allowable Stress Design
25 (ASD) and Plastic Design

26
27 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

28
29 ANSI Z49.1 Safety in Welding and Cutting

30
31 AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)

32
33 ASNT SNT-TC-1A Personnel Qualifications and Certification in Nondestructive
34 Testing

35
36 AMERICAN WELDING SOCIETY (AWS)

37
38 AWS A2.4 Symbols for Welding and Nondestructive Testing
39 AWS A3.0 Welding Terms and Definitions
40 AWS B2.1 Specification for Welding Procedure and Performance Qualification
41 AWS D1.1 Structural Welding Code - Steel
42 AWS D1.6 Structural Welding Code – Stainless Steel
43 AWS QC1 AWS Standard for Qualification and Certification of Welding
44 Inspectors

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AMERICAN SOCIETY FOR MECHANICAL ENGINEERS (ASME)

ASME Sect. V Boiler and Pressure Vessel Code (Nondestructive Examination)

DEFINITIONS AND SYMBOLS:

Definitions for welding terms shall be in accordance with AWS A3.0 and weld symbols shall be in accordance with AWS A2.4, unless otherwise indicated.

SUBMITTALS:

Submittals include, but are not limited to the following:

1. Cleaning procedures for stainless steel.
2. Subcontractor's procedures for identification and control of tools and equipment.
3. Welding procedure specifications and procedure qualification records. These procedures shall be referenced on the shop drawings, and erection drawings as applicable.
4. Welding personnel qualification records.
5. Subcontractor's nondestructive examination procedures.
6. Subcontractor's nondestructive examination personnel qualification records.
7. Procedures for the handling, storage, and control of filler and backing materials.
8. Filler metal manufacturer or independent testing lab certified mill test reports (CMTR) of actual chemical properties and heat number identification for filler metals. CMTRs with typical chemical properties are permitted for carbon steel filler metals that use the SMAW process.
9. The heat number shall be marked on the CMTR for stainless filler metals. The CMTR shall certify that the material has been inspected and tested in accordance with the requirements of the specification and that the results of the chemical analysis meet the requirements of the specification for the AWS material classification.
10. Weld histories including reports of each inspection, examination and test.
11. Detailed weld repair procedures.
12. Weld repair reports including weld identification, welder identification number, test procedure, reason for rejection, number of repairs required, and documentation that weld is repaired and accepted.
13. Shop drawings showing all welds. All necessary information such as location, size, weld preparation, etc., shall be shown. The drawings shall differentiate between shop and field welds. The weld procedures and filler material to be used shall be indicated.

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

1
2 QUALITY CONTROL:

3
4 Codes and Standards Regulatory Requirements (Codes and Standards): Comply with
5 provisions of the following codes and standards, unless otherwise specified herein:
6

- 7 AISC ASD Specification
8 AWS D1.1
9 AWS D1.6

10
11 General: Components with welds will not be accepted unless the welding has been specified
12 or indicated in the design documents or otherwise approved. Welding shall be as specified in
13 this Section except where additional requirements are indicated or are specified in other
14 sections.
15

16 Weld Procedure Qualification: The Subcontractor shall establish and qualify Weld Procedure
17 Specifications (WPS) for any welding performed during this Subcontract in accordance with
18 the requirements of AWS B2.1, D1.1, or D1.6 as applicable. Approval will not relieve the
19 Subcontractor of the sole responsibility for preparing procedures in accordance with the
20 above referenced specification.
21

22 Welder Qualification: Welding shall be performed by welders or operators qualified in
23 accordance with AWS B2.1, D1.1 or D1.6 as applicable.
24

25 Certification: The welder shall be provided with a certificate card by the Subcontractor upon
26 successful completion of the qualification test. The certificate shall state the welding
27 process, codes, and procedures under which the welder is qualified, and individual who
28 issued the certificate. The welder shall carry the certificate card when performing welding
29 under this subcontract. The Subcontractor shall have on file documentation, affidavits, and
30 records of testing and test results which qualified the welder for certification. These records
31 shall be certified by the Subcontractor and shall be submitted to the Contractor as vendor
32 data.
33

34 Renewal of Qualification: Renewal of qualifications of a welder or welding operator
35 working shall be as required in AWS D1.1 or D1.6 as applicable.
36

37 Nondestructive Examination Procedures: The Subcontractor shall establish detailed
38 inspection procedures and acceptance criteria for each nondestructive examination required
39 in accordance with the requirements specified in PART 3--EXECUTION - SOURCE AND
40 FIELD QUALITY CONTROL and additionally as required to ensure conformance of the
41 work to the subcontract requirements.
42

43 Subcontractor's Nondestructive Examination Personnel Qualifications: The Subcontractor's
44 nondestructive examination (including visual examination) personnel shall be qualified for

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1 the applicable nondestructive testing method in accordance with the requirements of ASNT
2 SNT-TC-1A for Levels I, II, or III as applicable. Qualification as an AWS Certified Weld
3 Inspector is an acceptable alternative for visual examination. The Subcontractor shall have
4 on file documentation, affidavits, and records of testing and test results that qualified the
5 nondestructive examination personnel.

6
7 DELIVERY, STORAGE, AND HANDLING:

8
9 Except as otherwise specified, filler materials, backing materials, and fluxes shall be stored,
10 handled and controlled in accordance with approved procedures. As a minimum the
11 procedures shall include manufacturer's recommendations.

12
13 SAFETY:

14
15 As a minimum, safety precautions during welding shall conform to ANSI Z49.1 as well as
16 any additional requirements specified in the subcontract documents.

17
18 PART 2--PRODUCTS

19
20 GENERAL:

21
22 Welding equipment, electrodes, filler material, and fluxes shall be capable of producing
23 satisfactory welds when used by a qualified welder or welding operator utilizing qualified
24 welding procedures.

25
26 MATERIALS:

27
28 Filler Material: All filler material used in fabrication shall comply with the applicable
29 requirements of AWS D1.1 or D1.6 as applicable and have an actual certified material test
30 report (CMTR) for stainless metals or a typical CMTR for carbon steel metals, issued by the
31 original manufacturer or independent testing laboratory performing material testing.

32
33 Straight lengths of bare filler metal shall be marked on each end with heat number and AWS
34 material classification. Spools of bare filler metal shall be marked on the side of the spool
35 with the heat number and AWS material classification.

36
37 Gases: Shielding and purge gas(es) shall be in accordance with the applicable weld
38 procedure.

39
40 PART 3--EXECUTION

41
42 WELDING OPERATIONS:

43

1 Welding shall be accomplished in accordance with specified code requirements and the
2 qualified and approved welding procedure specifications using qualified welders and/or
3 welding operators. The use of such procedures will not relieve the Subcontractor of his
4 responsibility for producing weldments conforming to the specified workmanship
5 requirements. Welding shall not be done when the quality of the completed weld could be
6 impaired by the prevailing working or weather conditions.

7
8 Welding Processes:

9
10 Subject to approval of the Subcontractor's welding procedures, acceptable welding
11 processes are:

- 12 Shielded Metal Arc Welding (SMAW)
- 13 Gas Tungsten Arc Welding (GTAW)
- 14 Flux Core Arc Welding (FCAW)
- 15 Gas Metal Arc Welding – Spray Transfer (GMAW)
- 16 Gas Metal Arc Welding – Pulsed (GMAW-P)
- 17 Submerged Arc Welding (SAW)
- 18 Stud Welding

19
20
21 Short Arc Gas Metal Arc Welding (GMAW-S) process is not permitted.

22
23 Other welding processes may be used subject to specific approval. The Subcontractor
24 shall submit pertinent data and proposed application of said other welding processes for
25 evaluation by the Contractor prior to performing weld procedure qualification.

26
27 Tools and Equipment: Tools and equipment used in the fabrication of stainless steel and
28 nickel based alloys shall be free from corrosion and shall be maintained free of grease, carbon
29 steel particles, or any other foreign matter detrimental to fabrication. Mechanical cleaning
30 tools used for stainless steel shall not cause carbon steel to be embedded into the surface.
31 Wire brush material shall be of a material compatible with the parent material. Grinding
32 wheels shall be resin bonded. Metal removal tools, wire brushes, and grinding wheels shall
33 not have been previously used for other than the parent material. The Subcontractor shall
34 establish and maintain identification and control procedures for equipment and tools
35 including wire brushes and grinding wheels.

36
37 Preparation of Base Metal: Surfaces within 2 in. of any weld location shall be free of any oil,
38 grease, paint, or other material that would prevent proper welding or produce objectionable
39 fumes while welding. If the joints of carbon steel are prepared by arc cutting, the surface
40 shall be ground to bright metal by mechanical means before welding. Plasma arc or laser
41 beam cutting of austenitic stainless steel is permitted provided the cut surface is machined or
42 ground a minimum of 1/16 in. to bright metal.

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1 Cleaning Stainless Steel: The weld joint and surrounding metal for at least 2 in. back from
2 the joint preparation shall be cleaned before welding. Cleaning shall be accomplished by
3 brushing with a clean stainless steel brush and by scrubbing with a clean lint free cloth
4 moistened with an approved low (less than 35 ppm) chloride or chloride-free solvent. When
5 the weld has cooled, remove all visible weld spatter, flux, arc-strikes, and scale, however, the
6 base material thickness shall not be compromised. Stainless steels shall not be descaled with
7 nitric-hydrofluoric acid solutions. Final cleaning shall be performed after inspection and
8 when nondestructive testing is complete.
9

10 Preheat and Interpass Temperature Requirement: Preheat and interpass temperature shall be
11 in accordance with the welding procedure specification.
12

13 Welding Requirements: Completed welds shall provide a surface that is free from cracks,
14 seams, laps, lamination, and porosity in excess of the specified acceptance requirements. Arc
15 strikes outside the area of permanent welds shall be avoided on base metal. Arc strikes shall
16 be removed by grinding as described in cleaning paragraph.
17

18 Fillet Welds: Fillet welds shall be made to the size and length as indicated. Where length of
19 welds is not specified, the weld shall be continuous for full length of joint. Where spacing of
20 intermittent or staggered weld is shown, the spacing shall be considered maximum only.
21

22 Unless fillet sizes are indicated as maximum size, oversize welds shall not exceed the
23 thickness of the thinner part joined. Fillet weld surface shall have a uniform transition from
24 the joined material into the weld deposit. Undercut shall be limited to the requirement of
25 AWS D1.1 or D1.6 as applicable and unfused overlap of the weld deposit shall be
26 unacceptable.
27

28 Groove Welds: Groove welds shall be 100% complete joint penetration welds unless
29 otherwise indicated. Groove welds shall be made to the requirements of the drawings and
30 specification.
31

32 Temporary Welds: Temporary welds shall be subject to the same welding procedure
33 requirements as the final welds. Temporary welds shall be removed unless otherwise
34 permitted by the Contractor. Surface of removed temporary welds shall be made flush with
35 the original surface.
36

37 Backing Strips and Weld Runoff Plates: The use of backing strips and weld runoff plates is
38 permitted on weldments. The backing strips and weld runoff plates shall be removed after
39 welding, unless otherwise indicated. Surface of removed temporary welds shall be made
40 flush with the original surface.
41

42 Base Metal Repair: Welding to repair base metal shall comply with the AWS D1.1 or D1.6
43 and the codes and specifications referenced in Section 05100.
44

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1 Weld Repairs: Defects shall be completely removed by grinding or other approved means to
2 clean, sound metal. Excavated areas shall be PT inspected by ASNT-TC-1A certified
3 personnel to assure defect removal.
4

5 Repairs to correct weld defects shall be made using the same procedure used for the original
6 weld or other previously authorized weld repair procedures.
7

8 Repaired areas shall be re-examined using the same inspection procedures by which the
9 defect was originally detected and the inspection which was originally specified for the weld.
10

11 No more than two repair attempts will be allowed on any one weld:
12

13 Cutting out, rebeveling and rewelding is considered a weld repair.
14

15 No further attempts to repair shall be carried out without the written authorization of the
16 Contractor.
17

18 Weld repairs subsequent to the first two repair attempts shall be made after receiving
19 written approval of Subcontractor's repair procedures.
20

21 Arc Strikes: Cracks and blemishes caused by arc strikes shall be ground to a smooth contour
22 but no more than 1/32 in. of the base metal shall be removed. Arc strikes extending more
23 than 1/32 in. into the base metal shall be considered as a weld defect and repaired as
24 specified. Ground arc strikes in carbon steel shall be subjected to visual examination and in
25 stainless steel shall be subjected to liquid penetrant examination.
26

27 FIELD QUALITY CONTROL: 28

29 General: Components with welds will not be accepted unless the welding has been specified
30 or indicated in the design documents or otherwise approved. Welding shall be as specified in
31 this Section except where additional requirements are indicated or specified in other sections.
32

33 Inspections, examinations, and tests for welds and weldments shall be performed by qualified
34 inspection, examination, and testing personnel in accordance with the approved procedures.
35 All welds are subject to inspection by the Contractor's Representative who reserves the right
36 to accept, reject or demand removal of welds which are in violation of this specification or
37 the applicable welding procedure specification. The Subcontractor shall provide access for
38 this activity.
39

40 Weld Testing and Inspection: 41

42 Visual Weld Inspection: All welds shall receive a visual (VT) examination. VT
43 inspection shall be performed, evaluated and documented by the Subcontractor. Visual
44 examination procedures shall be in accordance with AWS D1.1 or D1.6 as applicable.

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1 The evaluation of indications and the acceptance criteria shall be in accordance with
2 AWS D1.1 or D1.6 as applicable.

3

4 Contractor Inspection: Surveillance will be performed by the Contractors Representative
5 to verify compliance of the work to the drawings and specifications.

6

7 END OF SECTION 05060

1 SECTION 05100--STRUCTURAL STEEL AND MISCELLANEOUS METALS

2

3 PART 1--GENERAL

4

5 SUMMARY:

6

7 The Subcontractor shall supply all labor, equipment, and materials required to procure and
8 fabricate items listed hereafter and as shown on the drawings. The fabricator shall supply all
9 structural steel, high strength fasteners, rivets and screws necessary for assembly of the
10 structural steel.

11

12 Section Includes, but is not limited to:

13

- 14 1. Design and detailing of structural steel connections except as noted on the drawings
- 15 2. Production of shop and erection drawings
- 16 3. Procurement and fabrication of structural steel framing and framing connections
- 17 4. Procurement and fabrication of steel decking and floor plate
- 18 5. Procurement and fabrication of a shoring assemblies

19

20 Work Not Included: The Subcontractor is not responsible for field erection or assembly of
21 the structural steel.

22

23 Related Sections: 05060 Structural Welding
24 05101 Stainless Structural Steel

25

26 REFERENCES:

27

28 The following documents including others referenced therein, form part of this Section to the
29 extent designated herein.

30

31 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

32

33 AISC Code of Standard Practice for Steel Buildings and Bridges
34 AISC (ASD) Specification for Structural Steel Buildings - Allowable Stress Design
35 (ASD) and Plastic Design

36

37 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

38

39 RCSC Specification for Structural Joints Using ASTM A325 or A490 bolts

40

41 STEEL DECK INSTITUTE (SDI)

42

43 SDI Design Manual for Composite Decks, Form Decks and Roof Decks

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44

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC SP-7 Brush-off Blast Cleaning

The following specifications are referenced in regard to materials:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A36 Structural Steel
ASTM A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
ASTM A307 Carbon Steel Bolts and Studs, 60000 psi Tensile Strength
ASTM A325 High-Strength Bolts for Structural Steel Joints
ASTM A500 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A572 High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
ASTM A611 Steel, Sheet, Carbon, Cold-Rolled, Structural Quality
ASTM A653 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
ASTM A924 Sheet Steel, Zinc Coated (Galvanized) by the Hot Dip Process
ASTM A992 Steel for Structural Shapes for Use in Building Framing
ASTM F959 Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners
ASTM F1852 "Twist Off" Type Tension Control Structural Bolt/Nut/Washer Assemblies, Steel, Heat Treated, 120/150 ksi Minimum Tensile Strength

SUBMITTALS:

Submittals include, but are not limited to the following:

Fabrication and Inspection Plan: Submit a fabrication and inspection plan.

Shop Drawings: Submit shop drawings including all shop and erection details, and members (with their connections) not shown on the Subcontractor drawings. All welds shall be indicated by standard welding symbols of AWS A2.4.

Erection: Submit an erection plan of the structural steel framing. This erection plan shall conform to the requirements of AISC Code of Standard Practice. The erection plan shall describe all necessary temporary supports, including the sequence of installation and removal. Plan shall show sufficient detail and instructions to ensure the structure has been evaluated for stability throughout the subcontract.

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1 The erection plan shall include erection or installation plans for structural steel, floor decking
2 and floor plates.

3
4 Materials: Certified copies of mill tests reports (CMTR) for structural steel.

5
6 Product Data: Submit catalog data for screws and rivets. Include installation instructions
7 when applicable.

8
9 Certificates of Conformance: Provide certificates of conformance for structural bolts, nuts,
10 washers, fasteners, screws, rivets and decking.

11
12 Procedures: See Section 05060 for welding submittals.

13
14 Samples: Submit 3 high-strength bolt, nut and washer assemblies from each lot supplied for
15 testing. The assemblies shall be a random sample selected by the Contractor's
16 Representative.

17
18 Rigging Diagrams: Submit rigging diagrams for handling of welded sub-assemblies.

19
20 See Section 01300, Submittals and the Vendor Data Schedule for additional submittal
21 requirements.

22
23 QUALITY CONTROL:

24
25 Qualification for Welding Work:

26
27 See Section 05060--Structural Welding

28
29 DELIVERY, STORAGE AND HANDLING:

30
31 Store material to permit easy access for inspection and identification. Protect members and
32 materials from corrosion and deterioration.

33
34 Provide rigging diagrams for welded subassemblies.

35
36 Provide the weight of all members on the shop or erection drawings and mark all members
37 with their weight.

38
39 Do not store materials in a manner that might cause distortion or damage to members or
40 supporting structures. Repair or replace damaged materials that do not meet these
41 specifications.

42
43 PART 2--PRODUCTS

44

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- 1 MATERIALS:
2
3 Structural Steel W Shapes: ASTM A992, except where other type steel is indicated.
4
5 Structural Steel C, S, M, and HP Shapes: ASTM A36, except where other type steel is
6 indicated.
7
8 Miscellaneous Steel Plates, Angles and Bars: ASTM A36, except where other type steel is
9 indicated. Flange plates for moment connections shall be ASTM A572 Grade 50.
10
11 Steel Pipe: ASTM A53, Type E or S, Grade B
12
13 Shop Painting: Remove loose scale, heavy rust, and other foreign materials from fabricated
14 structural steel and accessories before application of shop paint.
15
16 Steel Decking: Steel deck shall conform to ASTM A611 (painted) grade as required by SDI
17 Specifications. Deck units shall be fabricated of 0.0598 (16 gage) inch design. Decking shall
18 be Vulcraft 3.0 N or equal.
19
20 Unfinished Threaded Fasteners: ASTM A307, Grade A, regular hexagon type, low carbon
21 steel.
22
23 High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and
24 hardened washers, as follows:
25
26 Quenched and tempered medium-carbon steel, bolts, nuts and washers, complying with
27 ASTM A325 Type 1.
28
29 Direct tension indicators shall conform to ASTM F959.
30
31 “Twist Off” type tension control structural bolt/nut/washer assemblies conforming to
32 ASTM F1852.
33
34 Deck Fasteners: TEK Self-Drilling screws, hex head, size as indicated on the drawings.
35
36 Plate Fasteners: TEK Self-Drilling screws, Phillips flat head, size and location as indicated
37 on the drawings.
38
39 High-strength rivets, zinc plated steel, 3/16 inch diameter with minimum shear strength of
40 1,000 lbs and minimum tensile strength of 800 lbs, location as indicated on the drawings.
41 Rivet strength shall be indicated on product data and certificate of conformance submittals.
42
43 Structural Steel Primer Paint: Primer shall conform to Painting Section 09900.
44

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1 FABRICATION:

2

3 Shop Fabrication and Assembly: Fabricate items of structural steel in accordance with AISC
4 ASD Specification.

5

6 Steel deck unit shall conform to the SDI requirements. Deck units shall span three (3) or
7 more supports unless otherwise indicated. Deck unit end lap shall be a minimum of 12
8 inches.

9

10 Fabrication and assembly shall be done in the shop to the maximum extent possible.

11

12 Connections: Weld or bolt shop connections, as indicated. Fabricator shall be responsible
13 for design and detailing of connections unless otherwise indicated on the drawings. Design
14 shall comply with AISC ASD Specification. Bolt field connections, except where welded
15 connections are indicated. Provide high-strength threaded fasteners for bolted connections,
16 except where otherwise indicated. Use 3/4 in. diameter unless otherwise noted. Install high
17 strength threaded fasteners in accordance with "Specification for Structural Joints Using
18 ASTM A325 or A490 Bolts". Connections using high-strength threaded fasteners shall be
19 considered "snug tight" unless otherwise indicated herein or on the drawings. Moment
20 connections using high-strength threaded fasteners shall be considered "slip critical". "Slip
21 critical" connections shall be made with "twist off" type tensions control structural
22 bolt/nut/washer assemblies unless otherwise approved by the Contractor's Representative.

23

24 Shim Plates: Provide shim plates for support of interior W24 and W21 main beams to
25 provide level top surface for the FFS.

26

27 Weld Construction: Comply with AWS D1.1 for procedures, appearance and quality of
28 welds, and methods used in correcting welding work. See welding specification Section
29 05060.

30

31 Shop Painting:

32

33 General: Shop paint structural steel, steel floor plate unless otherwise indicated herein or
34 on the drawings. Do not paint surfaces to be welded or with "slip critical" bolted
35 connections.

36

37 Surface Preparation: After inspection and before shipping, clean steel work to be painted.
38 Remove loose rust, loose mill scale, and splatter, slag or flux deposits. Clean steel in
39 accordance with SSPC SP-7 "Brush-off Blast Cleaning."

40

41 Painting: Immediately after surface preparation, apply structural steel primer paint in
42 accordance with manufacturer's instructions.

43

44 PART 3--EXECUTION

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ERECTION:

Not applicable to this subcontract.

FIELD QUALITY CONTROL:

Contractor Inspection: Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawing and specifications.

Subcontractor Supplied Testing:

Shop Bolted Connections: Inspect in accordance with the "Specification for Structural Joints Using ASTM A325 or A490 Bolts".

Shop Welding: See Section 05060.

END OF SECTION 05100

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1 SECTION 05101--STAINLESS STRUCTURAL STEEL

2
3 PART 1--GENERAL

4
5 SUMMARY:

6
7 Section Includes, but is not limited to:

- 8
9 1. Furnish all stainless steel liner plate
10 2. Stainless steel portions of the shoring box

11
12 Related Sections: 05060 Structural Welding
13 05100 Structural Steel and Miscellaneous Metals
14

15 REFERENCES:

16
17 The following documents, including others referenced therein, form part of this Section to the
18 extent designated herein.

19
20 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- 21
22 ASTM A 240 Standard Specification for Heat-Resisting Chromium and
23 Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for
24 Pressure Vessels
25 ASTM A 276 Standard Specification for Stainless Steel Bars and Shapes
26

27 SUBMITTALS:

28
29 Submittals include, but are not limited to the following:

30
31 Materials: Certified copies of mill tests reports (CMTR) for stainless steel.

32
33 See Section 01300, Section 05060, Section 05100, and the Vendor Data Schedule for
34 additional submittal requirements.

35
36 QUALITY CONTROL:

37
38 Regulatory Requirements (Codes and Standards): See Sections 05060 and 05100.
39

40 DELIVERY, STORAGE, AND HANDLING:

41
42 Store materials to permit easy access for inspection and identification. Protect members and
43 materials from corrosion and carbon contamination.
44

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1 Do not store or handle materials in a manner that might cause distortion or damage to
2 members or supporting structures. Repair or replace damaged materials or structures that do
3 not meet these specifications, as directed.

4
5 PART 2--PRODUCTS

6
7 MATERIALS:

8
9 Materials noted on the drawings as stainless steel shall conform to the following ASTM
10 specifications.

11
12 Plate: ASTM A 240, Type 304 or 304L.

13
14 Shapes: ASTM A 276, Type 304 or 304L.

15
16 FABRICATION:

17
18 Shop Fabrication and Assembly: Fabricate items of stainless steel in accordance with
19 applicable requirements of Section 05100.

20
21 Welded Construction: See Section 05060.

22
23 PART 3--EXECUTION

24
25 ERECTION:

26
27 Not applicable to this subcontract.

28
29 FIELD QUALITY CONTROL:

30
31 Contractor's Inspection: The Contractor's Representative will observe shop inspections.
32 Surveillance will be performed by the Contractor's Representative to verify compliance of the
33 work to the drawings and specifications.

34
35 Subcontractor Inspection: The Subcontractor shall provide inspection and quality control for
36 shop work as detailed hereafter and in Sections 05060 and 05100.

37
38 Conduct inspections and tests per AISC specifications. Record types and locations of defects
39 and work required and performed to correct all deficiencies.

40
41 Certify welders and perform inspections to welds as required by Section 05060 of this
42 specification.

43
44 END OF SECTION 05101

1 SECTION 09900--PAINTING

2

3 PART 1--GENERAL

4

5 SUMMARY:

6

7 Section Includes, but is not limited to:

8

9 Prime coating of all ferrous metal unless noted otherwise.

10

11 SUBMITTALS:

12

13 Submittal include, but are not limited to the following:

14

15 Product Data: Submit manufacturer's technical information, including paint label analysis
16 and application instructions for each material proposed for use.

17

18 See Section 01300, Submittals and the Vendor Data Schedule for additional submittal
19 requirements.

20

21 QUALITY CONTROL:

22

23 Applicator Qualifications: Engage an experienced applicator who is regularly engaged in the
24 application and installation of, and has successfully completed, coating system applications
25 similar in material and extent to those in this project.

26

27 DELIVERY, STORAGE, AND HANDLING:

28

29 General: Deliver materials to the job site in the manufacturer's original, new, unopened
30 packages and containers bearing the manufacturer's name and label, and the following
31 information:

32

33 Name or title of material

34 Product description (generic classification or binder type)

35 Manufacturer's name, stock number and date of manufacture

36 Contents by volume, for major pigment and vehicle constituents

37 Thinning instructions

38 Application instructions

39 Color name and number

40 Handling instructions and precautions

41

42 PART 2--PRODUCTS

43

44 MANUFACTURERS:

1
2 Subject to compliance with requirements, provide products of one of the following:

- 3
4 Benjamin-Moore
5 Columbia Paint Company
6 Devoe and Raynolds Company (ICI)
7 Fuller-O'Brien (ICI)
8 The Glidden Company (ICI)
9 ICI Dulux (ICI)
10 Ponderosa Paint Company
11 Pratt and Lambert
12 Sherwin-Williams Company
13

14 MATERIALS:

15
16 Paint shall be well ground, shall not settle excessively, cake or thicken in the container; shall
17 be readily broken up with paddle to a smooth consistency and shall show easy brushing
18 properties. Products containing lead or known carcinogens shall not be used. All products
19 used shall comply with VOC requirements.
20

21 PAINT SCHEDULE:

22
23 Ferrous Metal:

24
25 Primer: Rust inhibitive metal primer.
26

27 PART 3--EXECUTION

28
29 APPLICATION AND WORKMANSHIP:

30
31 General: No paint shall be thinned or otherwise altered in any manner other than
32 recommended by the paint manufacturer. All paint shall be applied in strict accordance with
33 the manufacturer's instructions, unless specified otherwise herein.
34

35 Number of Coats:

36
37 New Work: One coat of primer
38

39 Surface Preparation: All surfaces to be painted shall be clean, smooth, dry and free of
40 corrosion. The Subcontractor shall follow the paint manufacturer's recommendations for
41 surface preparation strictly for the particular substrate being painted. Welds that are not
42 prime coated shall be cleaned by wire brushing.
43

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1 Application: Paint shall be applied in such manner as to preclude runs, sagging, brush marks,
2 holidays or other defects in the finished surface. No painting shall be done when the ambient
3 temperature is less than 50°F or when the temperature during the drying period is apt to drop
4 below 50°F. In areas of fresh painted surfaces where the temperature has dropped below
5 45°F during the drying period, the area shall be brought back to or above 45°F and the drying
6 period extended to 48 hours. All paint shall, otherwise, be applied in strict accordance with
7 the paint manufacturer's directions, including use of respirators where required by the
8 manufacturer's instructions.

9

10 FIELD QUALITY CONTROL:

11

12 Surveillance will be performed by the Contractor's Representative to verify compliance of the
13 work to the drawings and specifications.

14

15 END OF SECTION 09900

16

Project Title: **OU 7-10 Glovebox Excavator Method FFS Fabrication**
Document Type: **Construction Specification** Project Number: 021052
Revision Number: 0

1

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431.14
08/01/2001
Rev. 03

Vendor Data Schedule

Purchase Order/
Work Order/
Subcontract No.

Rev: 1

OU 7-10 Glovebox Excavator Method Facility Floor Structure Fabrication

JENSEN SCOTT A

Date: 22-APR-02

POOLE MANNETTE, TSB-1W404, MS: 3915

Project Title

System Engineer/
Project Manager

Vendor Data Coordinator Address

Vendor Data Codes		Vendor Data Codes		Vendor Data Codes		Vendor Data Codes		Vendor Data Codes	
A. As-Built Drawings	K. Manufacturers Data Report	U. Shop Drawings	AE. MSDS	AO. Design Qualification Testing					
B. Assembly Drawings	L. O&M Manual	V. Survey Records	AF. Hardware Schedule	AP. Traceability Procedure					
C. Attendance Record	M. Parts List	W. Test Procedure	AG. Specification	AQ. Cleaning Procedure					
D. Blasting Plan	N. Piping Drawing	X. Special Processes	AH. Manufacturing/Inspection/Test Plan	AR. Weld Procedure Qualification					
E. Catalog Data	O. Procedure/Instructions	Y. Operational/CC	AI. Test Certification	AS. Welder Performance Personnel Qualifications					
F. Chem & Physical Analysis	P. Pump Head Curves	Z. Test Reports	AJ. Recommended Spares	AT. Non-Destructive Examination Personnel Certifications					
G. Concrete Mix Design	Q. Personnel Qualifications	AA. UL/IFM Listing	AK. Special Tools List	AU. Inspector Certifications					
H. Control System Diagram	R. Red_line Drawings	AB. Warranty/Guarantee	AL. Certificate of Conformance	AV. Limited Shelf Life/Operational Data					
I. Design Calculations	S. RSMI & Maintenance Log	AC. Weld Records	AM. Certificate of Disposal or Destruction	AW. Special Packaging, Shipping, and Rigging Procedure					
J. Installation Instructions	T. Sample(Color, Texture, etc.)	AD. Wiring Diagrams	AN. Design Verification	AX. Certificate of Materials to ASME Code					
				AY. Chemical Inventory					
				AZ. Other					
When to Submit									
AC - As Completed	BFA - Before Final Acceptance	PTP - Prior to Purchase	PTC - Prior to Construction Start	TS - Time of Shipment					
AT - After Test	BFR - Before Fabrication Release	PS - Prior to Shipment	PTI - Prior to Installation	WP - With Proposal					
BC - Before Contract Awarded	ROS - Removed Off-Site	PT - Prior to Test	PTW - Prior to Welding						
	PDS - Prior to Delivery on site								
Item No.	Clause/Article or Drawing/Specification Reference	Description	Vendor Data Code	Extra Copies Required	When to Submit	Approval Code			
1	01005	Material Safety Data Sheets	AE. MSDS	0	PTI - Prior to Installation	Approval Required			
2	05060	Carbon Steel Welding Personnel Qualification Records	AS. Welder Performance Personnel Qualifications	0	PTW - Prior to Welding	Information Only			
3	05060	Carbon Steel Welding Procedure Specifications and Procedure Qualification Records	AR. Weld Procedure Qualification	0	PTW - Prior to Welding	Approval Required			
4	05060	Carbon Steel Nondestructive Examination Procedures	X. Special Processes	0	PTW - Prior to Welding	Approval Required			

5	05060	Carbon Steel Nondestructive Examination Personnel Qualification Records	AT. Non-Destructive Examination Personnel Certifications	0	PTW - Prior to Welding	Information Only
6	05060	Detailed Weld Repair Procedures	AR. Weld Procedure Qualification	0	PTW - Prior to Welding	Approval Required
7	05060	Procedures for the Handling, Storage, and Control of Filler and Backing Materials	AP. Traceability Procedure	0	PTW - Prior to Welding	Approval Required
8	05060	Carbon Steel Filler Material CMTR	F. Chem & Physical Analysis	0	AC - As Completed	Information Only
9	05060	Weld Histories	AC. Weld Records	0	PS - Prior to Shipment	Information Only
10	05060	Weld Repair Reports	AC. Weld Records	0	PS - Prior to Shipment	Information Only
11	05060 & 05100	Shop Drawings	U. Shop Drawings	0	BFR - Before Fabrication Release	Approval Required
12	05060 & 05101	Stainless steel cleaning procedure	AQ. Cleaning Procedure	0	BFR - Before Fabrication Release	Information Only
13	05060 & 05101	Procedure for identification and control of tools and equipment	AZ. Other	0	BFR - Before Fabrication Release	Information Only
14	05060 & 05101	Stainless Steel Welder Qualifications	AS. Welder Performance Personnel Qualifications	0	PTW - Prior to Welding	Information Only
15	05060 & 05101	Nondestructive Examination Procedures for Stainless Steel	X. Special Processes	0	PTW - Prior to Welding	Approval Required
16	05060 & 05101	Filler Material CMTR for Stainless Steel	F. Chem & Physical Analysis	0	AC - As Completed	Information Only
17	05060 & 05101	Weld Repair Reports for Stainless Steel	AC. Weld Records	0	AC - As Completed	Information Only
18	05060 & 05101	Detailed Weld Repair Procedures for Stainless Steel	AR. Weld Procedure Qualification	0	PTW - Prior to Welding	Approval Required
19	05060 & 05101	Nondestructive Examination Personnel Qualification Records for Stainless Steel	AT. Non-Destructive Examination Personnel Certifications	0	PTW - Prior to Welding	Information Only
20	05060 & 05101	Welding Procedure Specifications and Procedure Qualification Records for Stainless Steel	AR. Weld Procedure Qualification	0	PTW - Prior to Welding	Approval Required
21	05100	Erection Drawings	B. Assembly Drawings	0	BFR - Before Fabrication Release	Approval Required
22	05100	Certified Material Test Reports for Structural Steel	F. Chem & Physical Analysis	0	AC - As Completed	Information Only
23	05100	Bolt Samples	T. Sample(Color, Texture, etc.)	3	PDS - Prior to Delivery on site	Approval Required
24	05100	Product data for screws and rivets	E. Catalog Data	0	BFR - Before Fabrication Release	Approval Required
25	05100	Certificate of conformance for bolting materials	AL. Certificate of Conformance	0	PS - Prior to Shipment	Information Only
26	05100	Certificate of Conformance for decking	AL. Certificate of Conformance	0	PS - Prior to Shipment	Information Only
27	05100	Certificate of conformance for screws, rivets or miscellaneous fasteners	AL. Certificate of Conformance	0	PS - Prior to Shipment	Information Only

	05100 & 05101	Fabrication and inspection plan	AH Manufacturing/Inspection/Test Plan	0	BFR - Before Fabrication Release	Approval Required
28						
29	05101	Inspection Records	Z. Test Reports	0	AC - As Completed	Information Only
30	05101	Certified Material Test Reports for Stainless Steel	F. Chem & Physical Analysis	0	AC - As Completed	Information Only
31	09900	Product Data	E. Catalog Data	0	PDS - Prior to Delivery on site	Information Only

Instructions:

1. Refer to subcontract documents for instructions on submittals.
2. Electronic submittals in lieu of paper documents are acceptable and encouraged.
3. The normal number of copies required is ONE. If more are required, the number will be shown here.
4. THE INEEL WILL SCAN ALL SUBMITTED VENDOR DATA INTO A SYSTEM THAT IS ACCESSIBLE TO ALL INEEL EMPLOYEES UNLESS THE SUPPLIER/SUBCONTRACTOR IDENTIFIES SUBMITTED INFORMATION AS PROPRIETARY.

DRAWING INDEX		DRAWING TITLE	
PAGE NO.	DWG NO.	A-E SH. NO.	REV
1	519907	T-1	

TITLE SHEET
1 519907 T-1 SITE MAP, AREA MAP AND DRAWING INDEX

STRUCTURAL

- 2 519908 FLOOR DESIGN LOADING PLAN
- 3 519909 FLOOR FRAMING PLAN
- 4 519910 LOWER FRAMING PLAN
- 5 519911 UPPER FRAMING PLAN
- 6 519912 LARGE SCALE LOWER FRAMING PLAN
- 7 519913 LARGE SCALE UPPER FRAMING PLAN
- 8 519914 WELDED STEEL MEMBER ASSEMBLIES
- 9 519915 LARGE SCALE PLANS - GLOVEBOX 1 & 2
- 10 519916 LARGE SCALE PLAN - GLOVEBOX 3
- 11 519917 FLOOR PLATE PLAN
- 12 519918 PLATE AREA WITHOUT DECKING UNDERNEATH
- 13 519919 PLATE AREA WITH DECKING UNDERNEATH
- 14 519920 FLOOR DECKING PLAN
- 15 519921 SECTIONS, DETAILS AND SCHEDULE
- 16 519922 SECTIONS
- 17 519923 SECTIONS
- 18 519924 CONNECTION DETAILS AND SECTIONS
- 19 519925 SHORING PLAN, DETAILS AND VIEWS
- 20 519926 SORING SECTION, DETAILS AND VIEW
- 21 519927 LIFTING LUG PLAN AND DETAILS

ELECTRICAL

- 22 519930 E-1 ELECTRICAL CONDUIT INSTALLATION PLAN

INFORMATION ONLY DRAWINGS

- 519889-1 A-1 FLOOR PLAN AND LEGENDS
- 519897 A-1 FLOOR PLAN

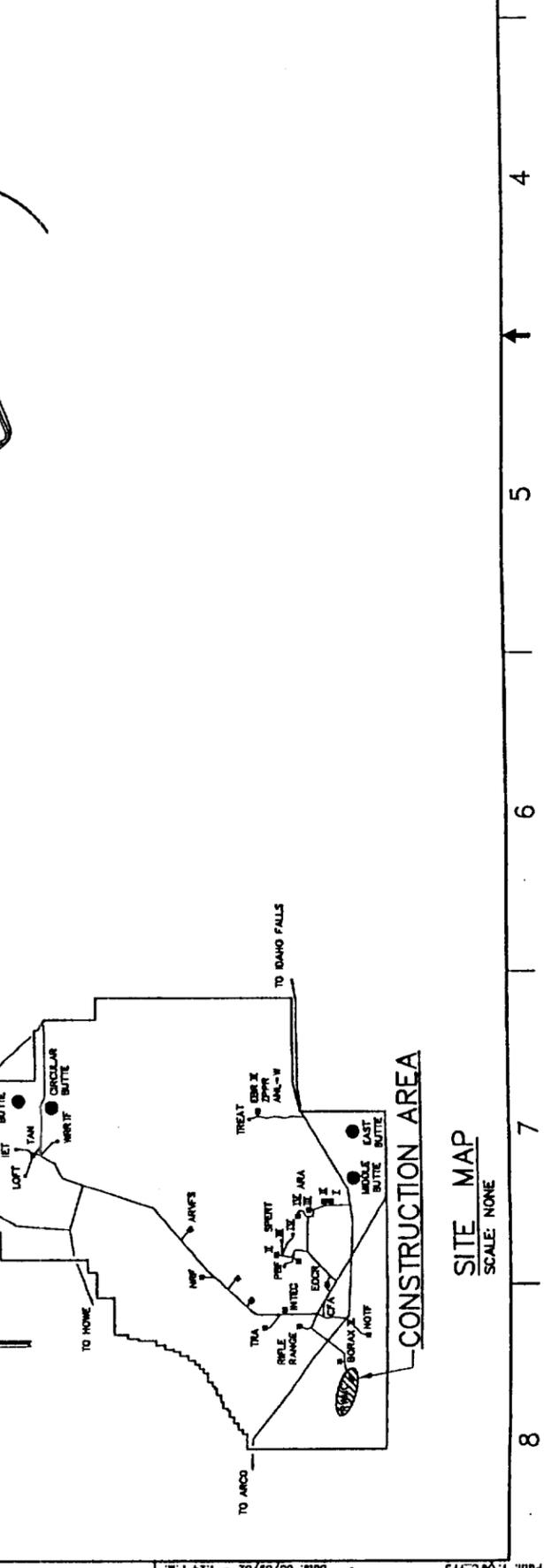
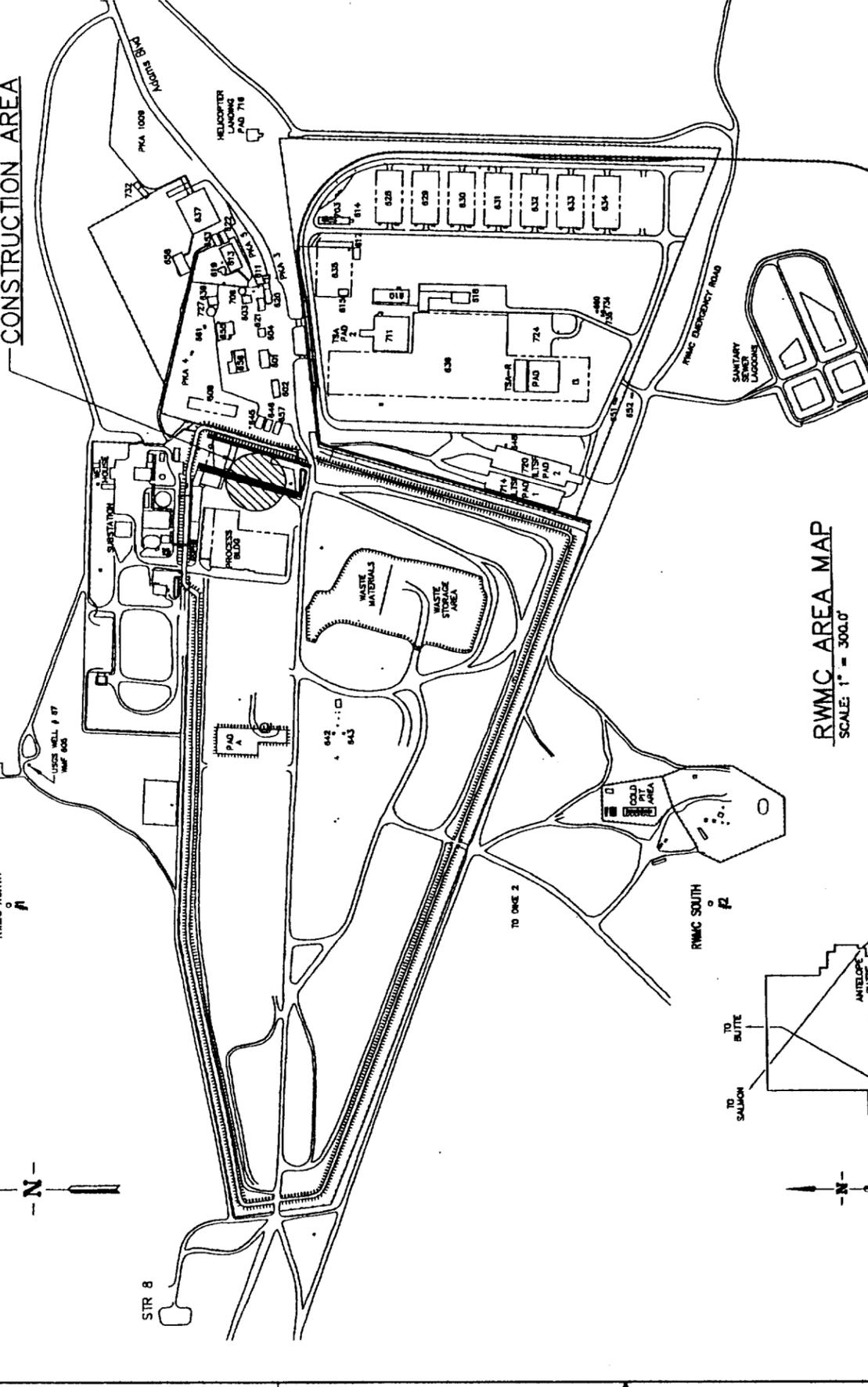
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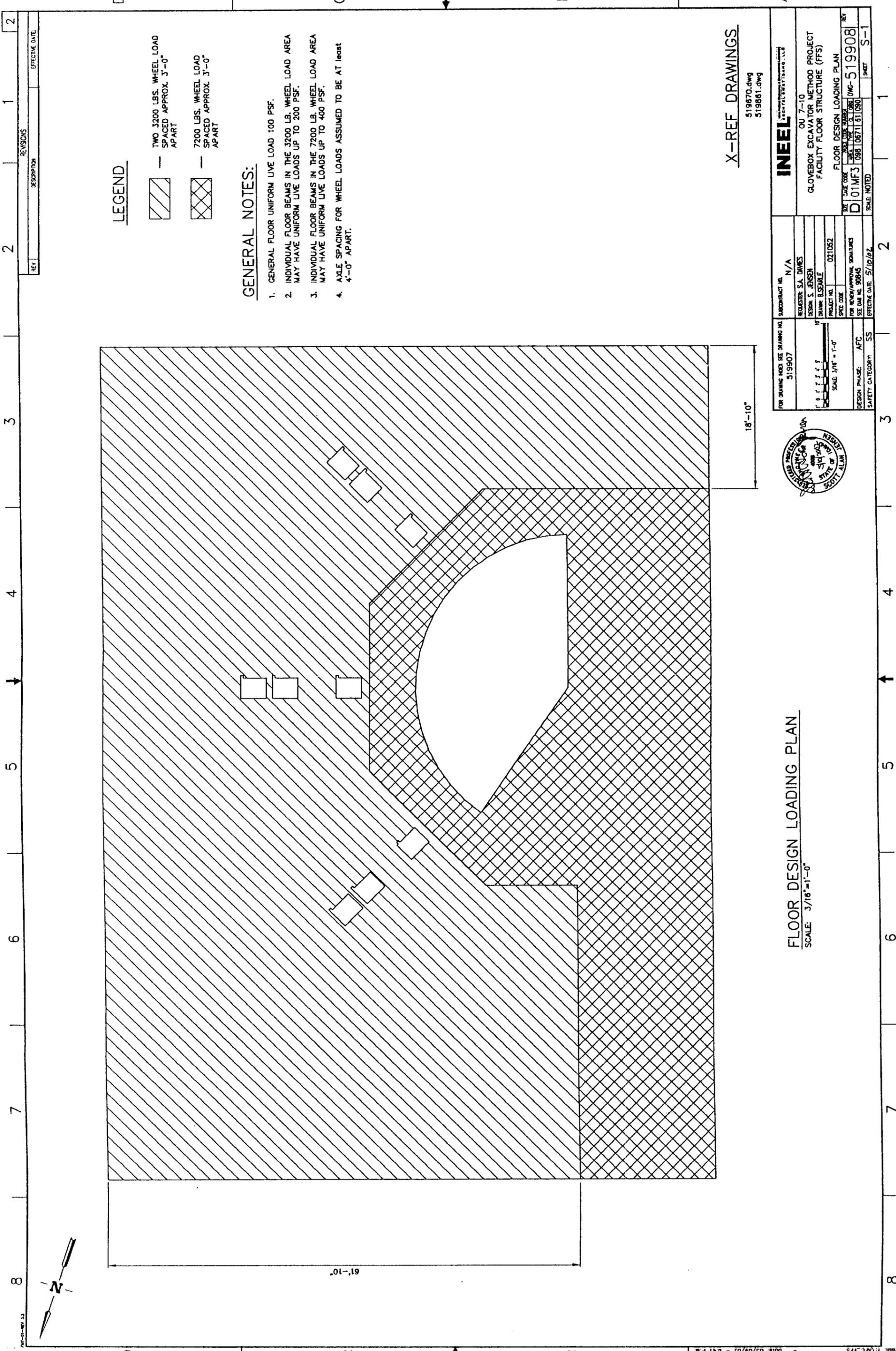
- 519070 FACILITY FLOOR
- 519861 SHORING BOX

FOR DRAWING INDEX SEE DRAWING NO.	SUBCONTRACT NO.
519907	N/A

DESIGNER: SA DAVES	PROJECT NO. 021052
DESIGNER: S. JENSEN	FOR REVIEW/REVISIONS
DRAWN: B. SEARLE	SEE DWG. NO. 50045
SCALE: 1" = 300'	DATE: 05/09/02
DESIGN PHASE: AFC	SCALE: NOTED
SAFETY CATEGORY: SS	

INEEL	
CU 7-10	
GLOVEBOX EXCAVATOR METHOD PROJECT	
FACILITY FLOOR STRUCTURE (FFS)	
SITE MAP, AREA MAP AND DRAWING INDEX	
DWG-519907	SHEET T-1





LEGEND

-  TWO 3200 LBS. WHEEL LOAD SPACED APPROX. 3'-0" APART
-  7200 LBS. WHEEL LOAD SPACED APPROX. 3'-0" APART

GENERAL NOTES:

1. GENERAL FLOOR UNIFORM LIVE LOAD 100 PSF.
2. INDIVIDUAL FLOOR BEAMS IN THE 3200 LB. WHEEL LOAD AREA MAY HAVE UNIFORM LIVE LOADS UP TO 200 PSF.
3. INDIVIDUAL FLOOR BEAMS IN THE 7200 LB. WHEEL LOAD AREA MAY HAVE UNIFORM LIVE LOADS UP TO 400 PSF.
4. AXLE SPACING FOR WHEEL LOADS ASSUMED TO BE AT LEAST 4'-0" APART.

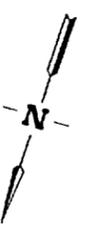
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 519861.dwg

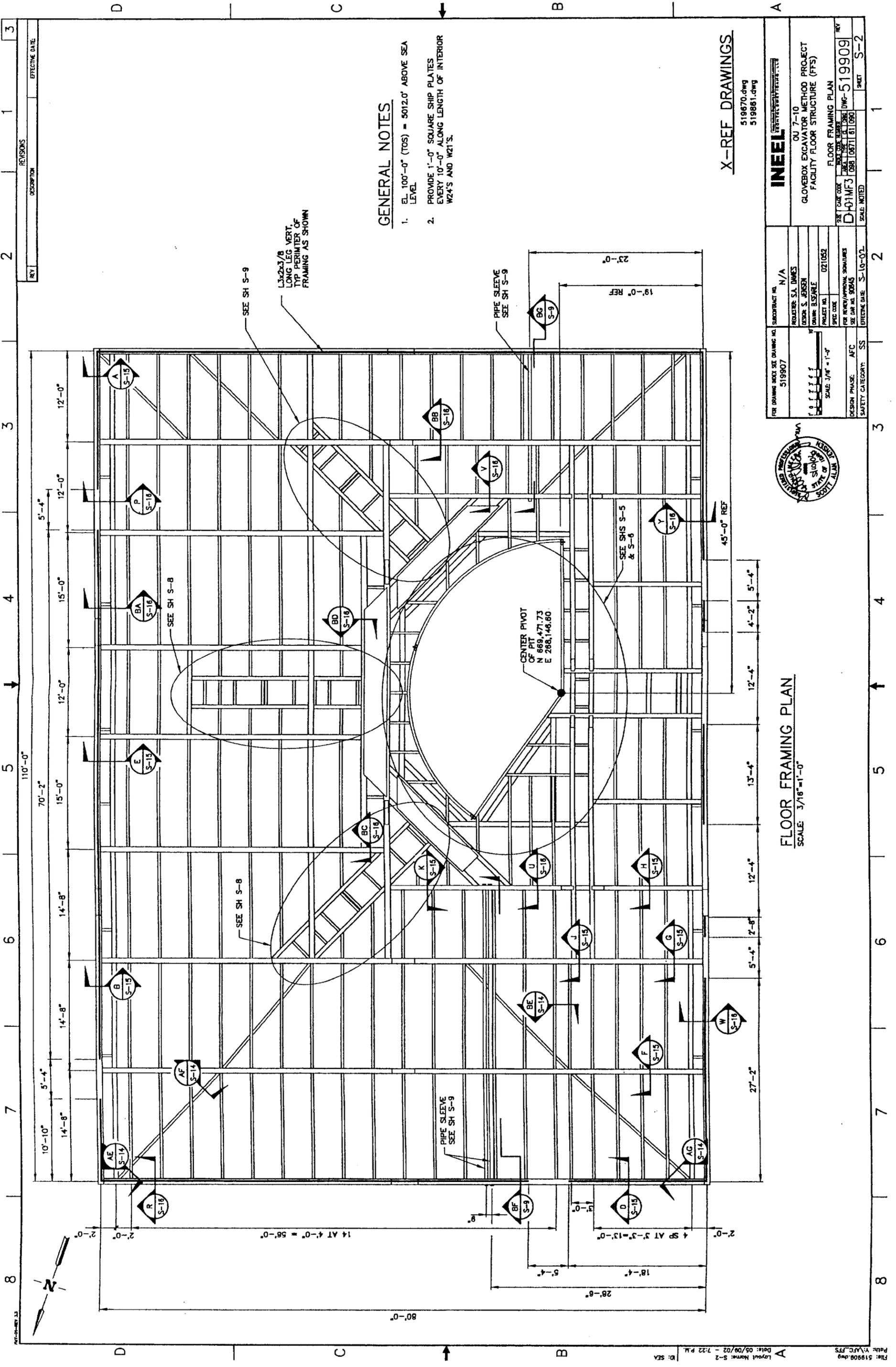
FOR DRAWING INDEX SEE DRAWING NO. 519907	SUBCONTRACT NO. N/A	REQUESTOR S.A. DIMES	DATE 02/05/02
DESIGNER S. JENSEN	PROJECT NO. 021052	FOR REVIEW/REVISION SIGNATURES	DATE 05/12/02
SCALE: 1/8" = 1'-0"	DESIGN PHASE: AFC	SEE DIM. NO. 90845	SCALE NOTED
SAFETY CATEGORY: SS	PROJECT NO. 088106711.61(090)	DWG-519908	SHEET S-1



FLOOR DESIGN LOADING PLAN
 SCALE: 3/16"=1'-0"

REV	DESCRIPTION	REVISIONS	EFFECTIVE DATE





GENERAL NOTES

1. EL. 100'-0" (TOS) = 5012.0' ABOVE SEA LEVEL
2. PROVIDE 1'-0" SQUARE SHIP PLATES EVERY 10'-0" ALONG LENGTH OF INTERIOR WZ4'S AND WZ1'S.

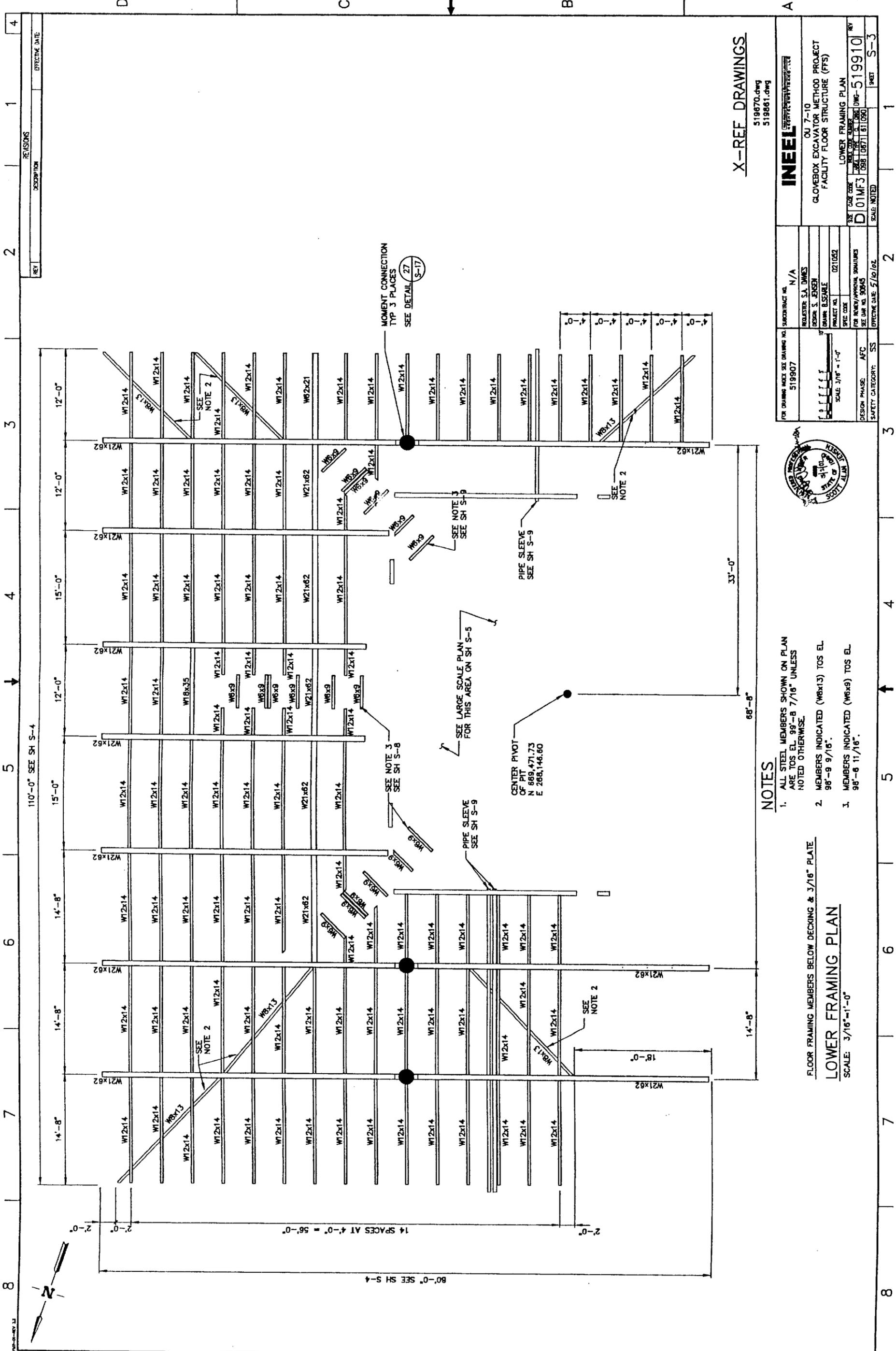
X-REF DRAWINGS

519870.dwg
519881.dwg

INEEL <small>INTEGRATED NUCLEAR ENERGY EVALUATION LABORATORY</small>	
PROJECT NO. 021052 DRAWING NO. 09810671 SHEET NO. 61090	SUBCONTRACT NO. N/A DESIGNER S.A. DIMES DESIGNER S. JENSEN DRAWING BY S. JENSEN PROJECT NO. 021052 SHEET NO. 61090 DATE 06/07/01
TITLE: FLOOR FRAMING PLAN PROJECT: GLOVEBOX EXCAVATOR METHOD PROJECT FACILITY FLOOR STRUCTURE (FFS)	DRAWING NO. 519909 SHEET NO. S-2



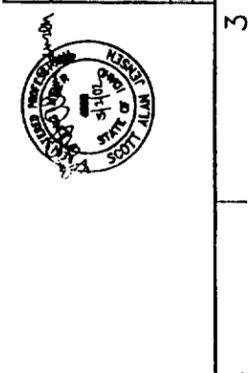
FLOOR FRAMING PLAN
SCALE: 3/16"=1'-0"



REV	DESCRIPTION	EFFECTIVE DATE

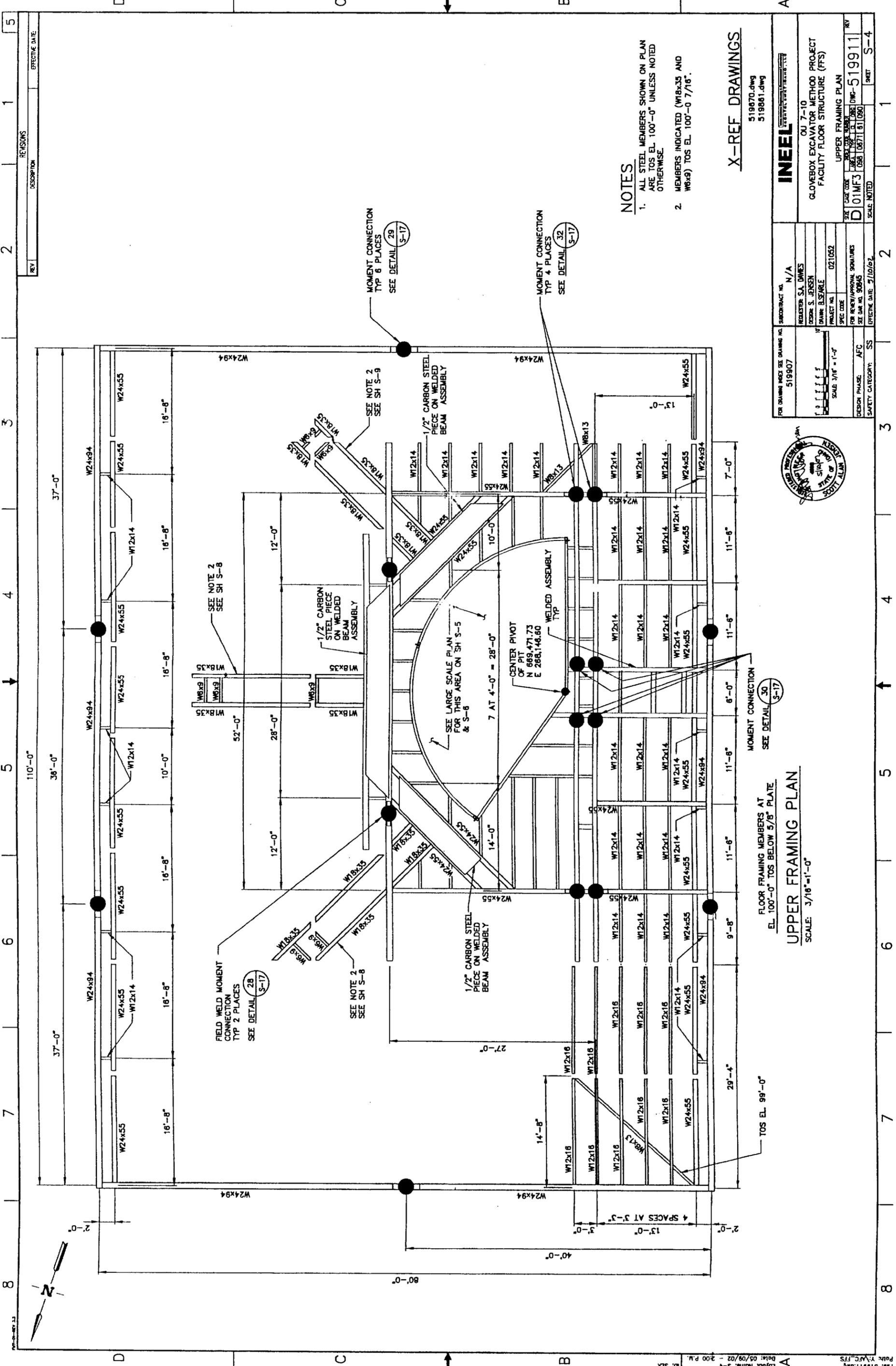
X-REF DRAWINGS
 519870.dwg
 519861.dwg

FOR DRAWING INDEX SEE DRAWING NO. SUBCONTRACT NO. 519907 N/A	
REGISTERED PROFESSIONAL ENGINEER SCOTT S. JENSEN DRIVING BLS/CALIF. PROJECT NO. 021062 SPEC. CODE FOR REVIEW/APPROVAL SIGNATURES SEE DRAWING NO. 90845 EFFECTIVE DATE: 5/10/02	<p>INEEL ILLINOIS NUCLEAR ENERGY LABORATORY</p> <p>OU 7-10 GLOVEBOX EXCAVATOR METHOD PROJECT FACILITY FLOOR STRUCTURE (FFS)</p> <p>LOWER FRAMING PLAN DRAWING NUMBER: DWG-519910 DATE: 05/09/02 SCALE: NOTED</p>



- NOTES**
- ALL STEEL MEMBERS SHOWN ON PLAN ARE TO EL 99'-8 7/16" UNLESS NOTED OTHERWISE.
 - MEMBERS INDICATED (W8x13) TO S EL 98'-9 9/16".
 - MEMBERS INDICATED (W6x9) TO S EL 98'-8 11/16".

FLOOR FRAMING MEMBERS BELOW DECKING & 3/16" PLATE
LOWER FRAMING PLAN
 SCALE: 3/16"=1'-0"



NOTES

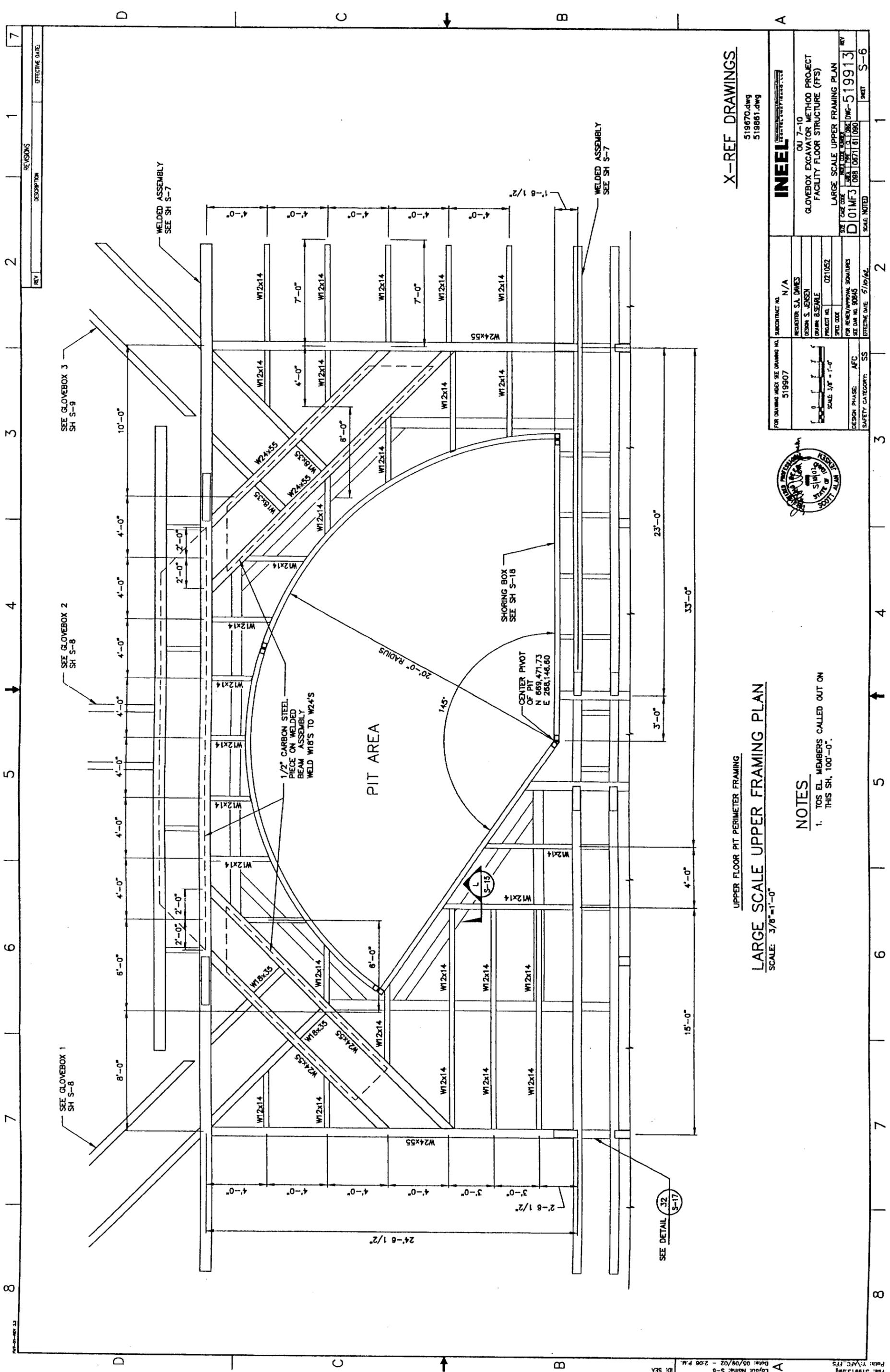
1. ALL STEEL MEMBERS SHOWN ON PLAN ARE TOS EL. 100'-0" UNLESS NOTED OTHERWISE.
2. MEMBERS INDICATED (W18x35 AND W8x9) TOS EL. 100'-0" 7/16".

X-REF DRAWINGS

FOR DRAWING INDEX SEE DRAWING NO. 519907	SUBCONTRACT NO. N/A	DATE CODE 021052
REQUESTOR S.A. DAVIES	DRAWN S. JENSEN	PROJECT NO. 021052
DESIGNER S. JENSEN	SCALE 3/16" = 1'-0"	FOR REVIEW/APPROVAL SIGNATURES SEE DRAWING NO. 519907
DATE 05/09/02	DATE 06/21/02	DATE 06/21/02
PROJECT 05810671181090	PROJECT 05810671181090	PROJECT 05810671181090
DESIGN PHASE AFC	SAFETY CATEGORY SS	SCALE NOTED
REVISIONS	DESCRIPTION	EFFECTIVE DATE



FLOOR FRAMING MEMBERS AT
EL. 100'-0" TOS BELOW 5/8" PLATE
UPPER FRAMING PLAN
SCALE: 3/16" = 1'-0"



X-REF DRAWINGS

519670.dwg
519661.dwg

INEEL
OU 7-10
GLOVEBOX EXCAVATOR METHOD PROJECT
FACILITY FLOOR STRUCTURE (FFS)
LARGE SCALE UPPER FRAMING PLAN

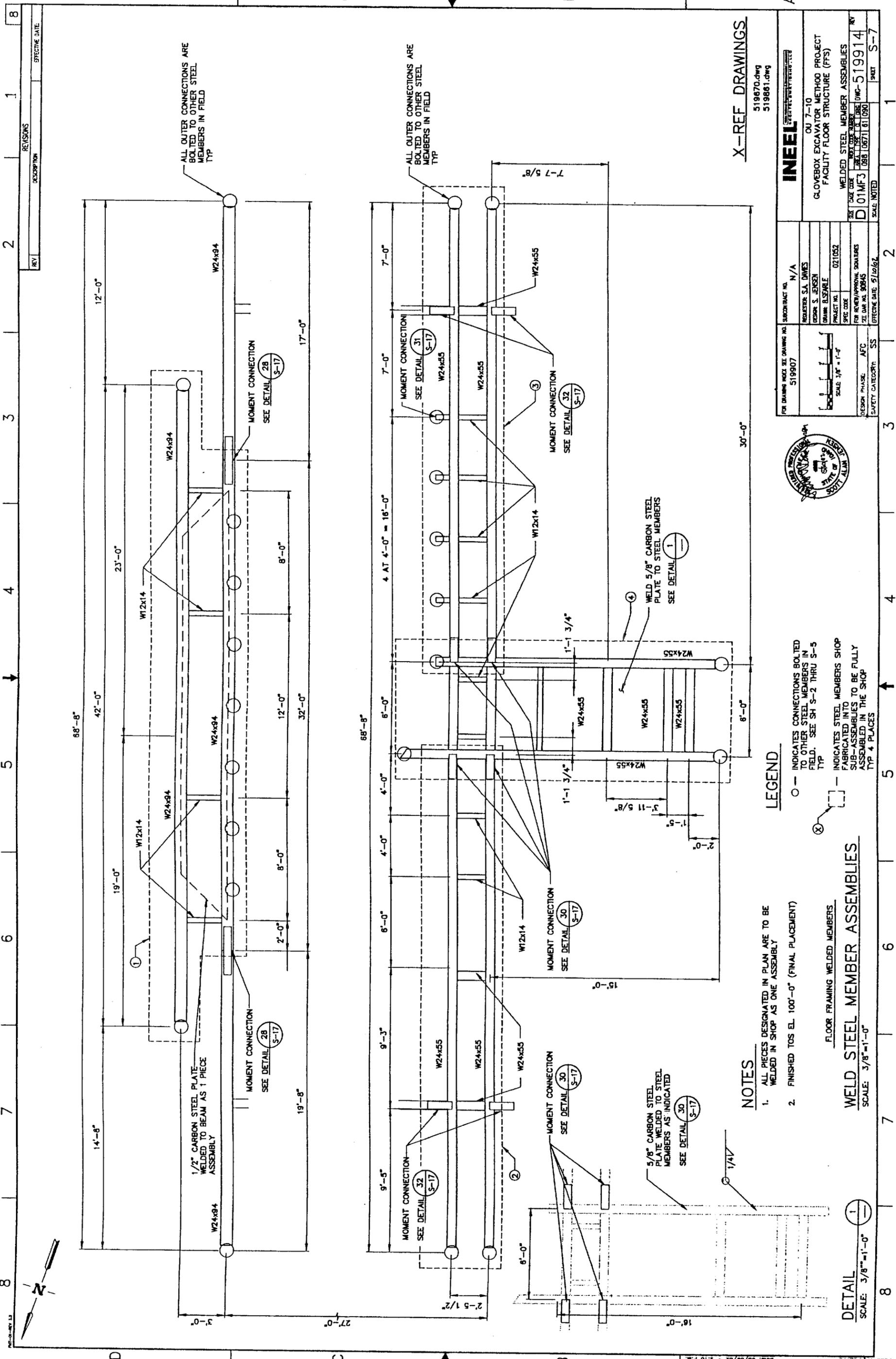
FOR DRAWING INDEX SEE DRAWING NO. 519907	SUBCONTRACT NO. N/A
DESIGNER: S.A. DIMES	PROJECT NO. 021052
DRAWN: B. SEARLE	FOR REVIEW/APPROVAL SIGNATURES
SCALE: 3/8" = 1'-0"	SEE DIM. NO. 90845
DESIGN PHASE: AFC	EFFECTIVE DATE: 5/10/02
SAFETY CATEGORY: SS	SCALE NOTED



UPPER FLOOR PIT PERIMETER FRAMING
LARGE SCALE UPPER FRAMING PLAN
SCALE: 3/8"=1'-0"

NOTES

1. TOP EL. MEMBERS CALLED OUT ON THIS SH, 100'-0".



LEGEND

- — INDICATES CONNECTIONS BOLTED TO OTHER STEEL MEMBERS IN FIELD. SEE SH S-2 THRU S-5 TYP
- ⊗ — INDICATES STEEL MEMBERS SHOP FABRICATED INTO SUB-ASSEMBLIES TO BE FULLY ASSEMBLED IN THE SHOP TYP & PLACES
- — FLOOR FRAMING WELDED MEMBERS

NOTES

- ALL PIECES DESIGNATED IN PLAN ARE TO BE WELDED IN SHOP AS ONE ASSEMBLY
- FINISHED TOS EL. 100'-0" (FINAL PLACEMENT)

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

WELD STEEL MEMBER ASSEMBLIES
SCALE: 3/8"=1'-0"

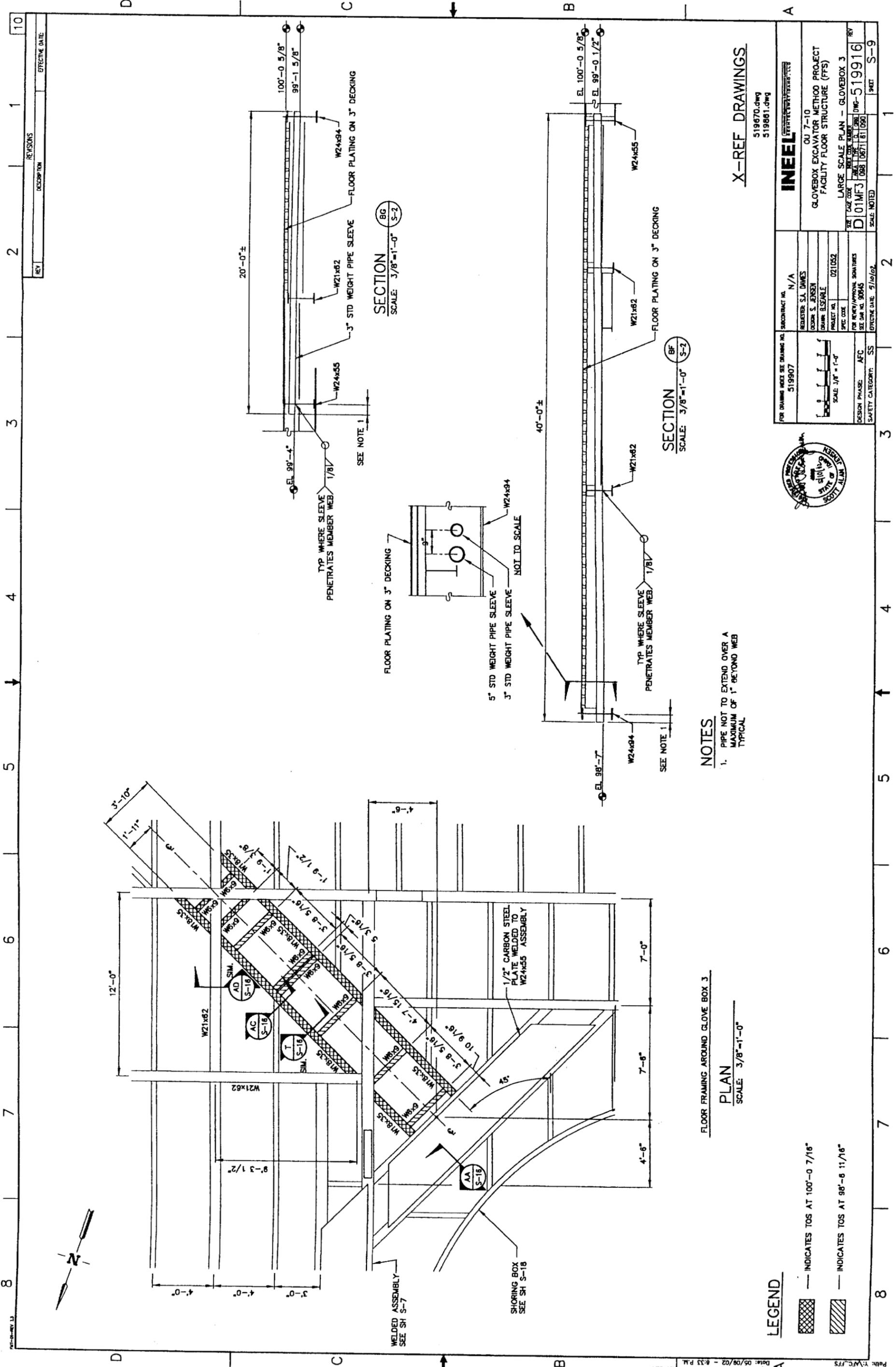
NOTES

- 1. ALL OUTER CONNECTIONS ARE BOLTED TO OTHER STEEL MEMBERS IN FIELD TYP
- 2. ALL OUTER CONNECTIONS ARE BOLTED TO OTHER STEEL MEMBERS IN FIELD TYP

X-REF DRAWINGS

FOR DRAWING INDEX SEE DRAWING NO. 519907	SUBCONTRACT NO. N/A
DESIGNED BY: ROBERT S. JENSEN	DRAWN BY: B. STABLE
PROJECT NO. 021052	SPEC. CODE: SEE DAT. NO. 90945
FOR REVIEW/APPROVAL SIGNATURES	DATE: 06/11/02
DESIGN PHASE: AFC	SAFETY CATEGORY: SS
SCALE: 3/8" = 1'-0"	EFFECTIVE DATE: 5/10/02
WELDED STEEL MEMBER ASSEMBLIES	REV: S-7
GLOVEBOX EXCAVATOR METHOOD PROJECT FACILITY FLOOR STRUCTURE (FFS)	OU 7-10
INTEL	519870.dwg 519881.dwg





FLOOR FRAMING AROUND GLOVE BOX 3
 PLAN
 SCALE: 3/8"=1'-0"

- NOTES**
- PIPE NOT TO EXTEND OVER A MAXIMUM OF 1" BEYOND WEB TYPICAL

LEGEND

	INDICATES TOS AT 100'-0 7/16"
	INDICATES TOS AT 99'-6 11/16"



FOR DRAWING INDEX SEE DRAWING NO. 519907	SUBCONTRACT NO. N/A
DESIGNER: S.A. DIMES	PROJECT NO. 021052
DESIGNER: S. JENSEN	PROJECT NO. 021052
DRAWN: B. SEARLE	PROJECT NO. 021052
PROJECT NO. 021052	PROJECT NO. 021052
SCALE: 3/8" = 1'-0"	SCALE: 3/8" = 1'-0"
FOR REVIEW/APPROVAL SIGNATURES	FOR REVIEW/APPROVAL SIGNATURES
DESIGN PHASE: AFC	DESIGN PHASE: AFC
SAFETY CATEGORY: SS	SAFETY CATEGORY: SS
SEE DATE: 9/24/04	SEE DATE: 9/24/04
EFFECTIVE DATE: 5/10/04	EFFECTIVE DATE: 5/10/04
SCALE: NOTED	SCALE: NOTED
DWG: 519916	DWG: 519916
REV: 3	REV: 3
REV: 2	REV: 2
REV: 1	REV: 1
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X-REF DRAWINGS

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 519661.dwg

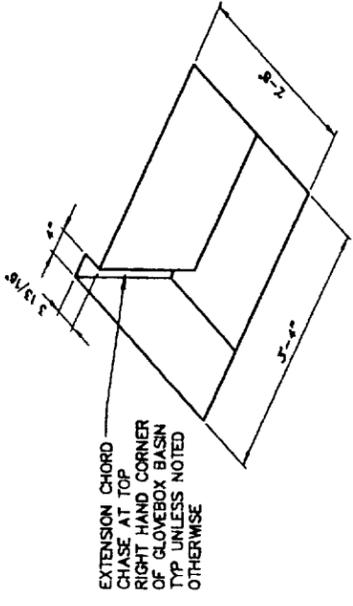
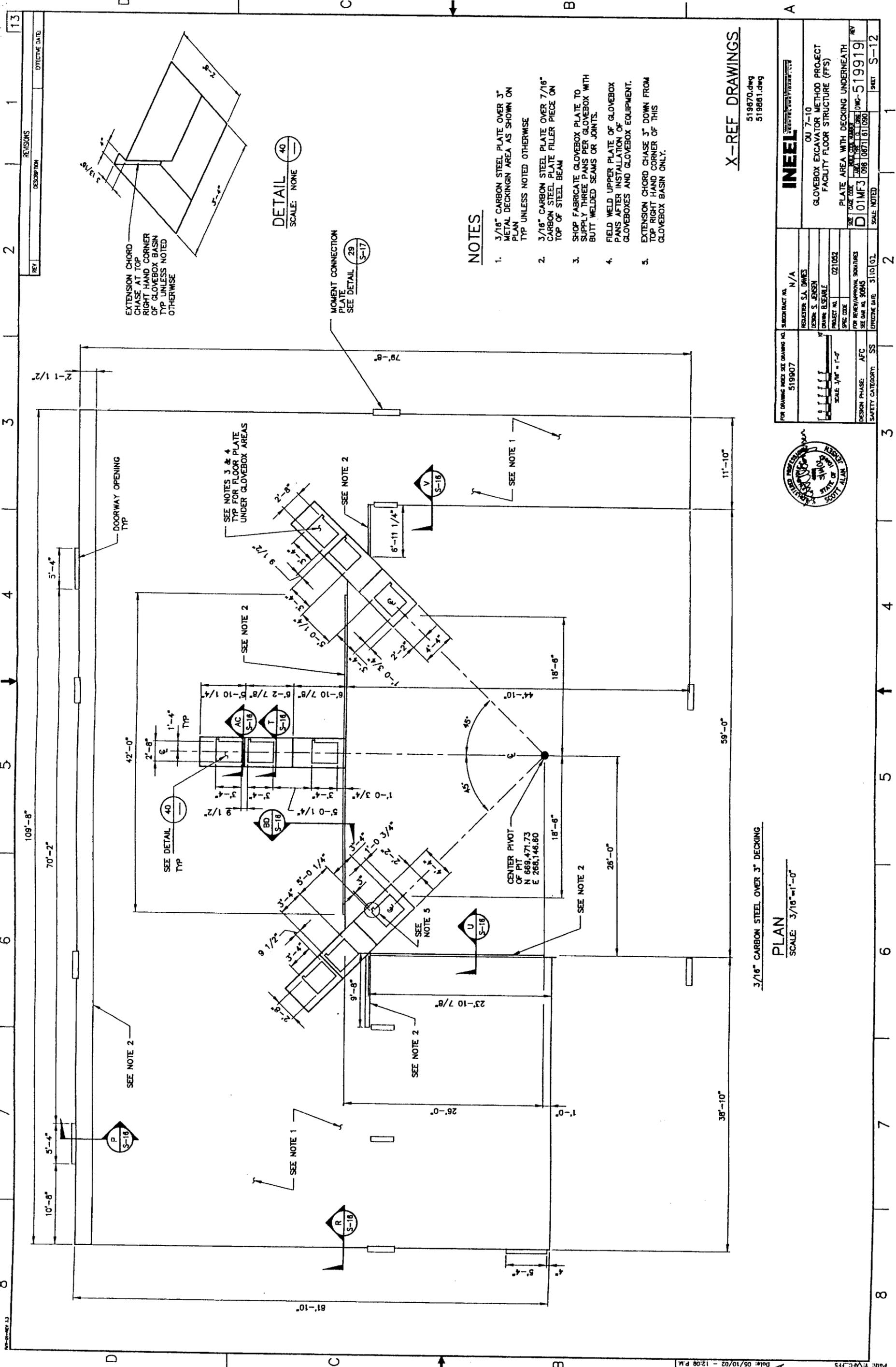
INEEL
 OJ 7-10
 GLOVEBOX EXCAVATOR METHOD PROJECT
 FACILITY FLOOR STRUCTURE (FPS)

LARGE SCALE PLAN - GLOVEBOX 3
 D 01MF3
 088 087181080

REV	DESCRIPTION	EFFECTIVE DATE

10 1 2 3 4 5 6 7 8

10 1 2 3 4 5 6 7 8



DETAIL 40
SCALE: NONE



NOTES

1. 3/16" CARBON STEEL PLATE OVER 3" METAL DECKING AREA AS SHOWN ON PLAN TYP UNLESS NOTED OTHERWISE
2. 3/16" CARBON STEEL PLATE OVER 7/16" CARBON STEEL PLATE FILLER PIECE ON TOP OF STEEL BEAM
3. SHOP FABRICATE GLOVEBOX PLATE TO SUPPLY THREE PANS PER GLOVEBOX WITH BUTT WELDED SEAMS OR JOINTS.
4. FIELD WELD UPPER PLATE OF GLOVEBOX GLOVEBOXES AND GLOVEBOX EQUIPMENT.
5. EXTENSION CHORD CHASE 3" DOWN FROM TOP RIGHT HAND CORNER OF THIS GLOVEBOX BASIN ONLY.

X-REF DRAWINGS

519870.dwg
519861.dwg

FOR DRAWING INFO SEE DRAWING NO. 519907	SUBCONTRACT NO. N/A
DESIGNER: S.A. DAVIES	PROJECT NO. 021052
DRAWN: B. JENSEN	FOR REVIEW/REVISION SIGNATURES: SEE DAT NO. 50045
SCALE: 3/16" = 1'-0"	DATE: 05/10/02
DESIGN PHASE: AFC	DATE: 05/10/02
SAFETY CATEGORY: SS	DATE: 05/10/02
PROJECT CODE: 098 06771 61 0590	SCALE NOTED
PLATE AREA WITH DECKING UNDERNEATH	SHEET S-12
D 01MF3	
519919	

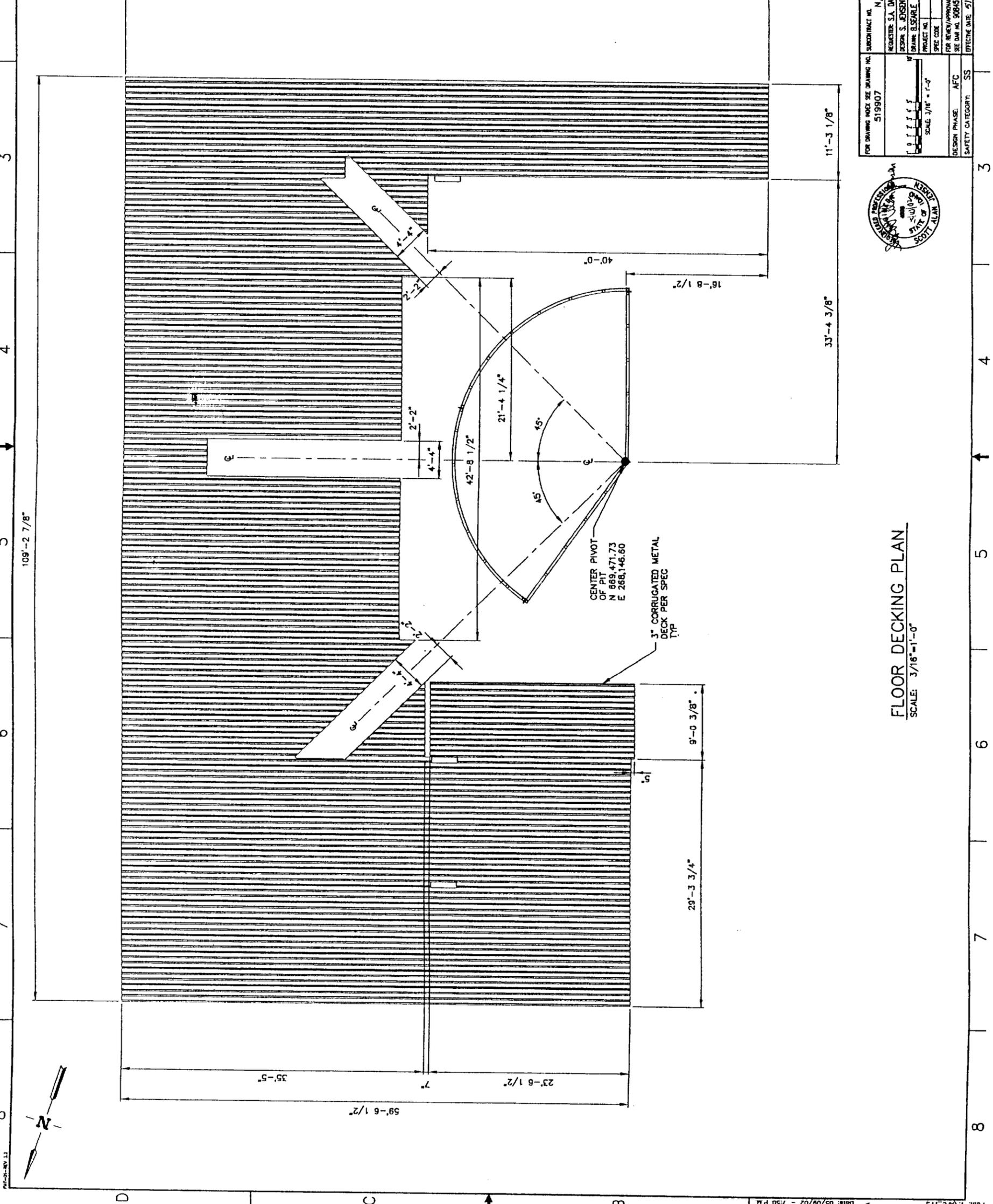


3/16" CARBON STEEL OVER 3" DECKING

PLAN

SCALE: 3/16" = 1'-0"

REV	DESCRIPTION	EFFECTIVE DATE
14		



X-REF DRAWINGS

519670.dwg
519661.dwg

INEEL		SUBCONTRACT NO. N/A	
OU 7-10		REQUESTER S.A. DAVES	
GLOVEBOX EXCAVATOR METHOD PROJECT		DESIGNER S. JENSEN	
FACILITY FLOOR STRUCTURE (FFS)		DRAWER B.SCHWAB	
FLOOR DECKING PLAN		PROJECT NO. 021052	
D 01MF3		SPEC CODE FOR REVIEW/APPROVAL SIGNATURES	
DWG-519920		SEE Dwg No. 90845	
SCALE NONE		EFFECTIVE DATE: 5/16/02	
SHEET S-13			



FLOOR DECKING PLAN
SCALE: 3/16"=1'-0"

REV	DESCRIPTION	EFFECTIVE DATE

STD - STANDARD HOLE
SSLT - SHORT-SLOTTED HOLES ORIENTED TRANSVERSE TO DIRECTION OF LOAD

ST - SNUG-TIGHTENED
PT - PRETENSIONED
SC - SLIP CRITICAL
N/A - NOT APPLICABLE

ALL BOLTS SHALL BE ASTM A325 TYPE 1 UNLESS NOTED OTHERWISE. WELD ELECTRODES SHALL BE E70XX UNLESS NOTED OTHERWISE.

ALL SLIP CRITICAL JOINTS SHALL HAVE CLASS A SURFACES. THE SLIP OF SLIP CRITICAL JOINTS SHALL BE CHECKED FOR SERVICE-LOAD CONDITIONS.

ALL JOINTS SHALL HAVE AT LEAST TWO BOLTS PER CONNECTION.

SEE S-3 THRU S-7 FOR BEAM PLANS.

SEE S-15 THRU S-19 FOR SECTIONS.

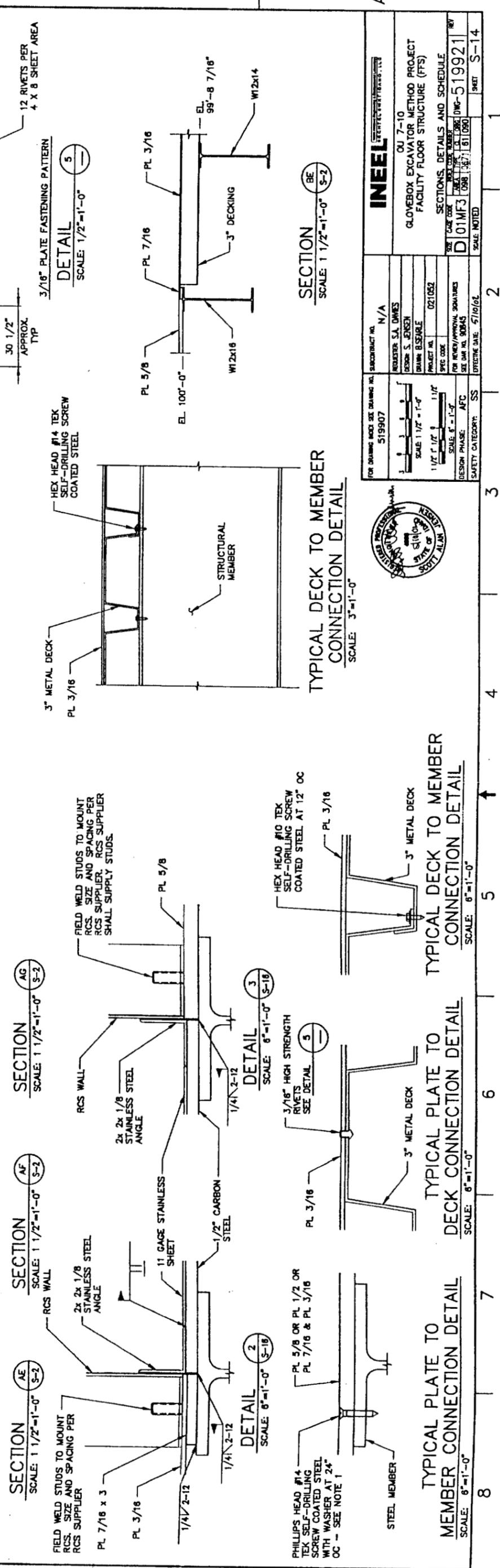
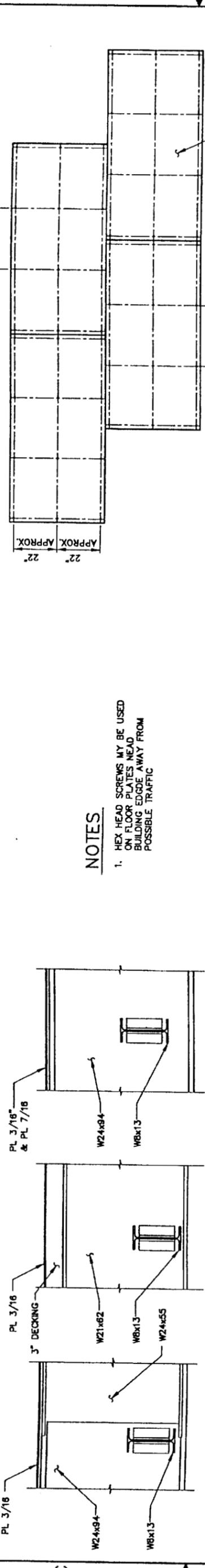
STEEL FABRICATOR SHALL DESIGN ALL DETAILS FOR CONNECTIONS IN THIS SCHEDULE UNLESS NOTED OTHERWISE.

SHEAR CONNECTION SCHEDULE

SECTION CALLOUTS	BEAM SIZE	JOINT TYPE	MIN. BOLT DIAMETER	HOLE TYPE	CONNECTION TYPE	DESIGN SERVICE LOADS	CONNECTS TO	NOTES
T	W8 X 9	ST	5/8	STD OR SSLT	SHEAR	2 KIPS	W18 X 35, W12 X 14, W24 X 94, W24 X 55	SINGLE SHEAR CONNECTION
AE, AF, AG	W8 X 13	PT	5/8	STD	AXIAL	12.5 KIPS	W24 X 94, W21 X 62	
G,H,I,K,AC BA,R,BB,T,U,V	W12 X 14	ST	5/8	STD OR SSLT	SHEAR	14 KIPS	W24 X 94, W24 X 55, W21 X 62 & W12 X 14	SINGLE SHEAR CONNECTION
AH & DET. 1	W12 X 14	ST	3/4	SSLT	SHEAR	N/A	SHORING BOX	SEE DESIGN DETAILS
D,F,G	W12 X 16	ST	5/8	STD OR SSLT	SHEAR	14 KIPS	W24 X 94, W21 X 62	SINGLE SHEAR CONNECTION
L,M,N	W12 X 45	ST	3/4	STD OR SSLT	SHEAR	27 KIPS	W24 X 94, W24 X 55, W12 X 45	
AA, AB, AD	W18 X 35	ST	3/4	STD OR SSLT	SHEAR	28 KIPS	W24 X 55	
B,E,BD	W21 X 62	ST	3/4	STD OR SSLT	SHEAR	35 KIPS	W24 X 94, W24 X 55	
E	W24 X 55	ST	3/4	STD OR SSLT	SHEAR	53 KIPS	W24 X 94, W21 X 62	W24X55'S PARALLEL TO FLOOR EDGE
J,Y	W24 X 55	ST	3/4	STD OR SSLT	SHEAR	90 KIPS	W24 X 94, W24 X 55 & W21 X 62	DOUBLE SHEAR CONNECTION
A,BC	W24 X 94	ST	3/4	STD OR SSLT	SHEAR	102 KIPS	W24 X 94, W21 X 62	DOUBLE SHEAR CONNECTION

NOTES

- HEX HEAD #10 TEK ON FLOOR PLATES NEAR BUILDING EDGE AWAY FROM POSSIBLE TRAFFIC



INTEEL

OU 7-10
GLOVEBOX EXCAVATOR METHOD PROJECT
FACILITY FLOOR STRUCTURE (FFS)

DESIGNER: S.A. DIMES
PROJECT NO.: 021052
SPEC. CODE: 11/2
SCALE: 6"=1'-0"
DESIGN PHASE: AFC
SAFETY CATEGORY: SS

FOR REVISIONS/ISSUES: (108) (109) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120)

SECTION: DETAILS AND SCHEDULE
D101MF3 (088) (108) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120)

SCALE NOTED

DATE: 5/10/02

SHEET: S-14

FOR DRAWING INDEX SEE DRAWING NO. 519907

SCALE: 1 1/2"=1'-0"

SCALE: 1 1/2"=1'-0"

SCALE: 6"=1'-0"

SCALE: 6"=1'-0"

SCALE: 6"=1'-0"

SCALE: 6"=1'-0"

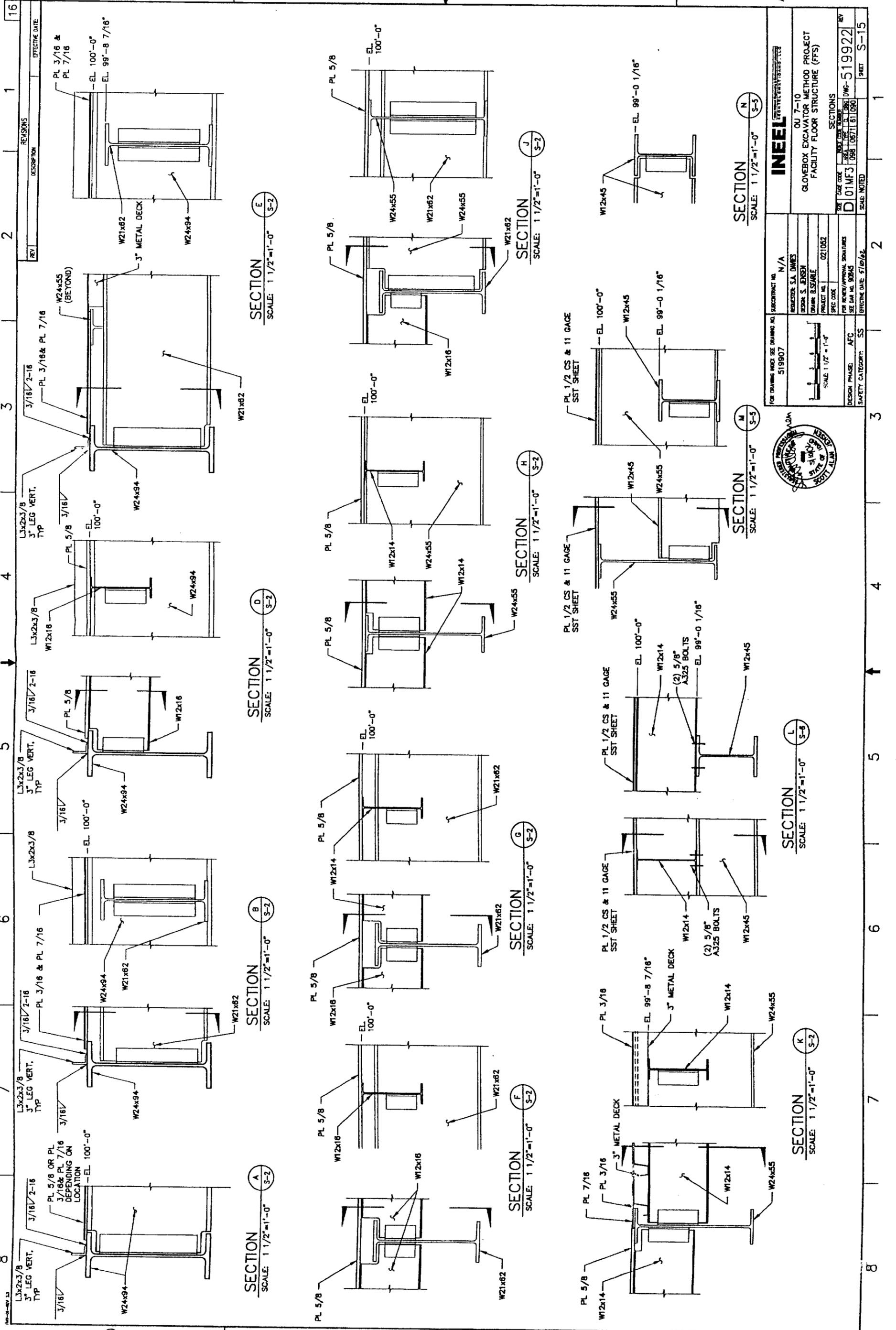
PHILLIPS HEAD #14 TEK SELF-DRILLING SCREW WITH WASHER AT 24" OC - SEE NOTE 1

FIELD WELD STUDS TO MOUNT RCS. SIZE AND SPACING PER RCS SUPPLIER. RCS SUPPLIER SHALL SUPPLY STUDS.

HEX HEAD #10 TEK SELF-DRILLING SCREW COATED STEEL AT 12" OC

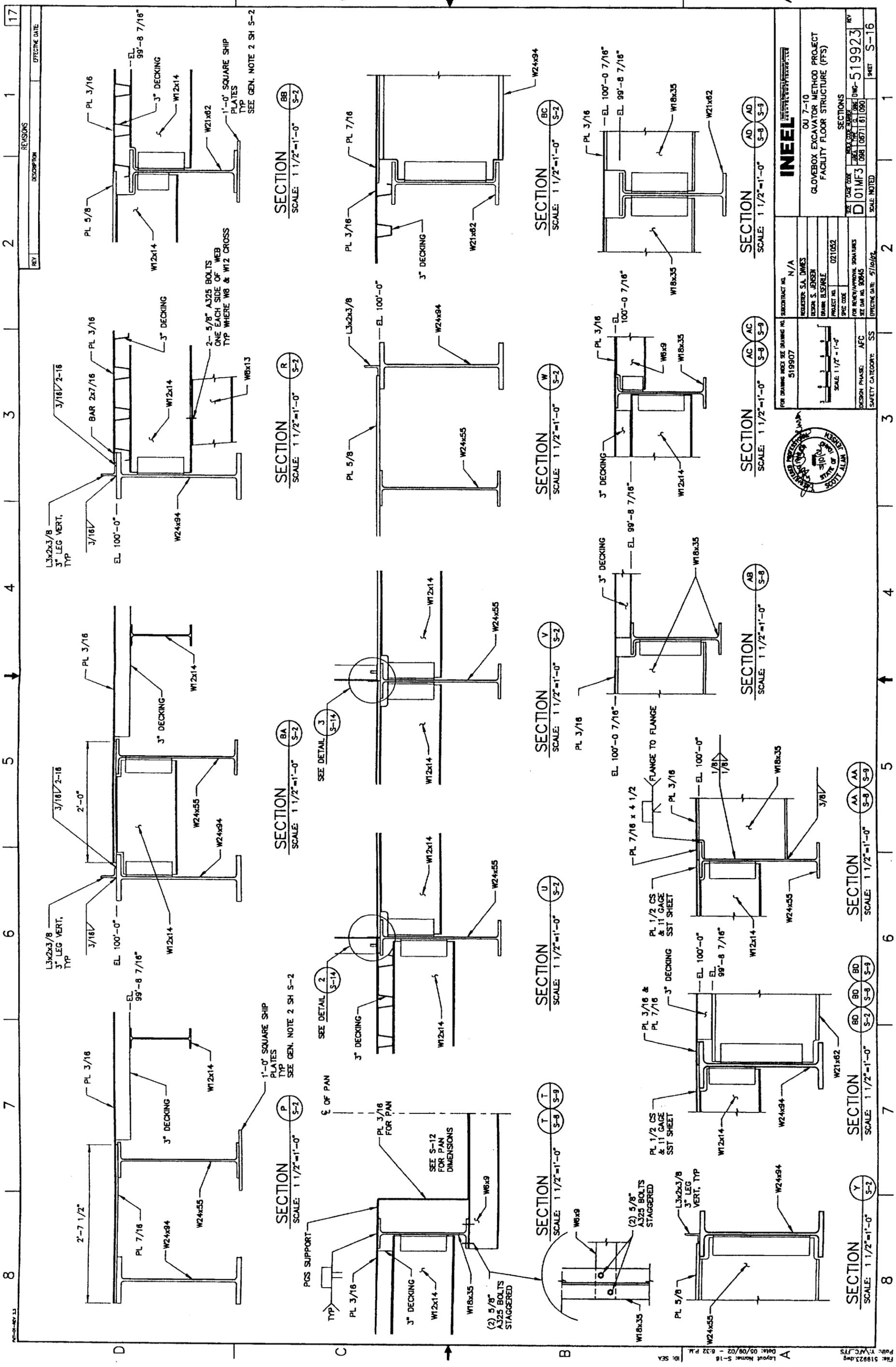
HEX HEAD #14 TEK SELF-DRILLING SCREW COATED STEEL

HEX HEAD #10 TEK SELF-DRILLING SCREW COATED STEEL



INTEL <small>INTERNATIONAL ENGINEERING CONSULTANTS</small>	
PROJECT NO. 519907 SUBCONTRACT NO. N/A DESIGNER: S.A. DIMES CHECKER: S. JENSEN DRAWN: B. SEARLE PROJECT NO. 021052 SPEC. CODE FOR REVIEW/APPROVAL SIGNATURES SEE DIA. NO. 90845 DATE: 08/11/00 DWG-519922	SECTIONS SCALE: NOTED SHEET S-15
DESIGN PHASE: AFC SAFETY CATEGORY: SS	SPECIFIC DATE: 7/12/02

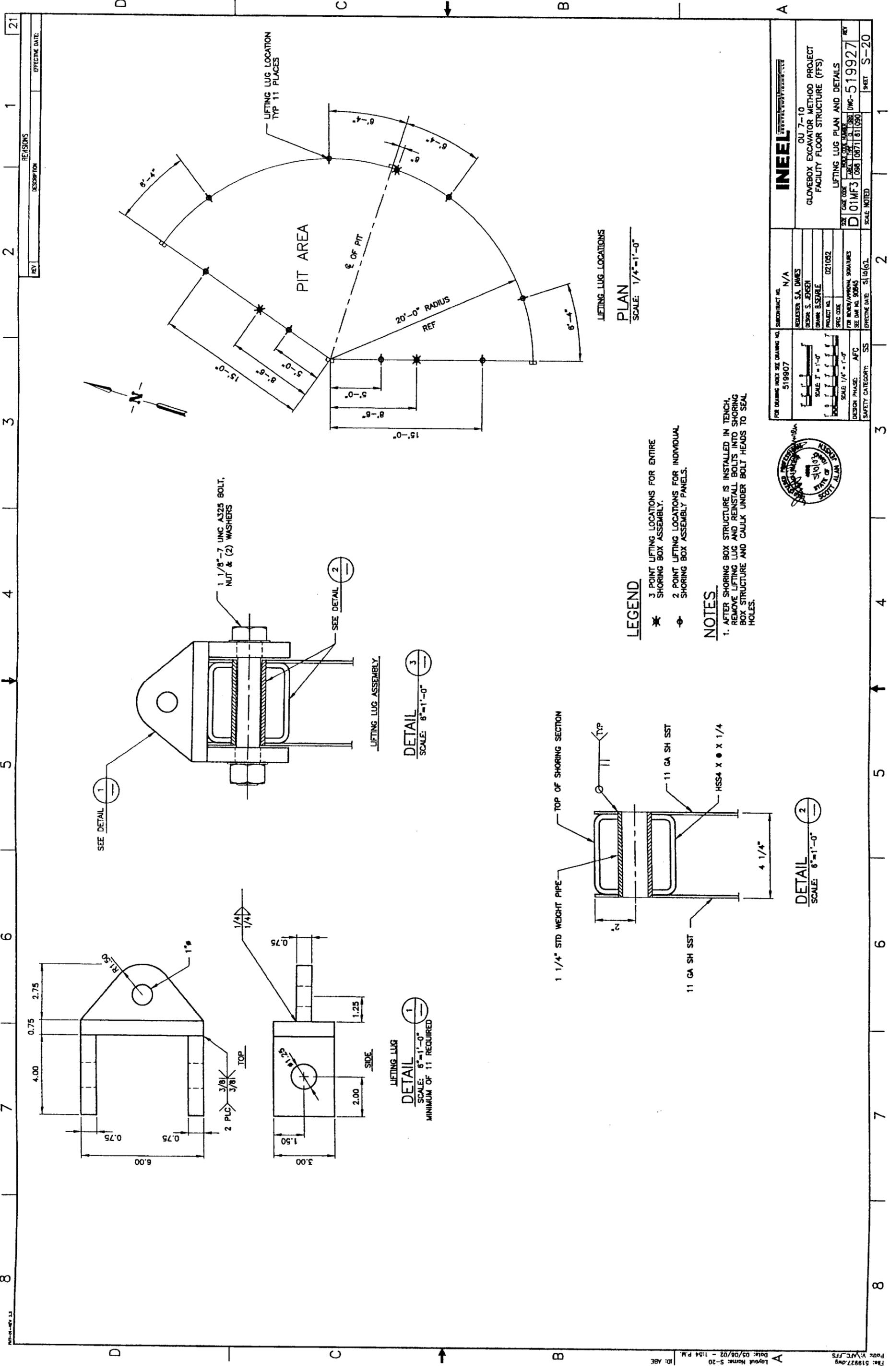
FOR DRAWING INDEX SEE DRAWING NO. 519907 SCALE: 1 1/2" = 1'-0" SECTION H	SECTION M SCALE: 1 1/2" = 1'-0" SECTION N
SECTION D SCALE: 1 1/2" = 1'-0" SECTION E	SECTION J SCALE: 1 1/2" = 1'-0" SECTION K
SECTION F SCALE: 1 1/2" = 1'-0" SECTION G	SECTION L SCALE: 1 1/2" = 1'-0" SECTION M
SECTION A SCALE: 1 1/2" = 1'-0" SECTION B	SECTION C SCALE: 1 1/2" = 1'-0" SECTION D
SECTION I SCALE: 1 1/2" = 1'-0" SECTION J	SECTION K SCALE: 1 1/2" = 1'-0" SECTION L
SECTION O SCALE: 1 1/2" = 1'-0" SECTION P	SECTION Q SCALE: 1 1/2" = 1'-0" SECTION R



REV	DESCRIPTION	REVISIONS	EFFECTIVE DATE

INTEL SUBCONTRACT NO. N/A	
DESIGNER: S.A. DIMES CHECKED: S. JENSEN DRAWN: B. SEIFERLE PROJECT NO.: 021052 SPEC. CODE:	QU 7-10 GLOVEBOX EXCAVATOR METHOD PROJECT FACILITY FLOOR STRUCTURE (FFS)
DESIGN PHASE: AFC SAFETY CATEGORY: SS	SECTION: D 01MF3 DATE: 08/11/08 DWG: 519923 SHEET: S-16

FOR DRAWING INDEX SEE DRAWING NO. 519907	SECTION: AA AA SCALE: 1 1/2"=1'-0"
SECTION: AB AB SCALE: 1 1/2"=1'-0"	SECTION: BB BB SCALE: 1 1/2"=1'-0"
SECTION: AC AC SCALE: 1 1/2"=1'-0"	SECTION: BC BC SCALE: 1 1/2"=1'-0"
SECTION: AD AD SCALE: 1 1/2"=1'-0"	SECTION: DD DD SCALE: 1 1/2"=1'-0"
SECTION: EE EE SCALE: 1 1/2"=1'-0"	SECTION: FF FF SCALE: 1 1/2"=1'-0"
SECTION: GG GG SCALE: 1 1/2"=1'-0"	SECTION: HH HH SCALE: 1 1/2"=1'-0"
SECTION: II II SCALE: 1 1/2"=1'-0"	SECTION: JJ JJ SCALE: 1 1/2"=1'-0"
SECTION: KK KK SCALE: 1 1/2"=1'-0"	SECTION: LL LL SCALE: 1 1/2"=1'-0"
SECTION: MM MM SCALE: 1 1/2"=1'-0"	SECTION: NN NN SCALE: 1 1/2"=1'-0"
SECTION: OO OO SCALE: 1 1/2"=1'-0"	SECTION: PP PP SCALE: 1 1/2"=1'-0"
SECTION: QQ QQ SCALE: 1 1/2"=1'-0"	SECTION: RR RR SCALE: 1 1/2"=1'-0"
SECTION: SS SS SCALE: 1 1/2"=1'-0"	SECTION: TT TT SCALE: 1 1/2"=1'-0"
SECTION: UU UU SCALE: 1 1/2"=1'-0"	SECTION: VV VV SCALE: 1 1/2"=1'-0"
SECTION: WW WW SCALE: 1 1/2"=1'-0"	SECTION: XX XX SCALE: 1 1/2"=1'-0"
SECTION: YY YY SCALE: 1 1/2"=1'-0"	SECTION: ZZ ZZ SCALE: 1 1/2"=1'-0"



REV	DESCRIPTION	EFFECTIVE DATE

LIFTING LUG LOCATIONS
PLAN
 SCALE: 1/4"=1'-0"

LEGEND

- ★ 3 POINT LIFTING LOCATIONS FOR ENTIRE SHORING BOX ASSEMBLY.
- ⊕ 2 POINT LIFTING LOCATIONS FOR INDIVIDUAL SHORING BOX ASSEMBLY PANELS.

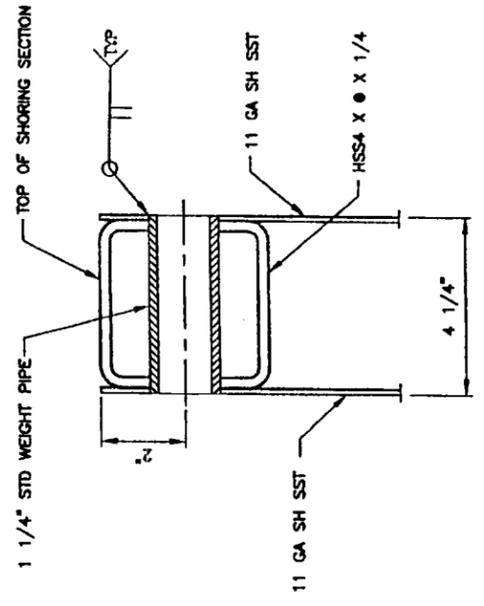
NOTES

1. AFTER SHORING BOX STRUCTURE IS INSTALLED IN TRENCH, REMOVE LIFTING LUG AND REINSTALL BOLTS INTO SHORING BOX STRUCTURE AND CAULK UNDER BOLT HEADS TO SEAL HOLES.

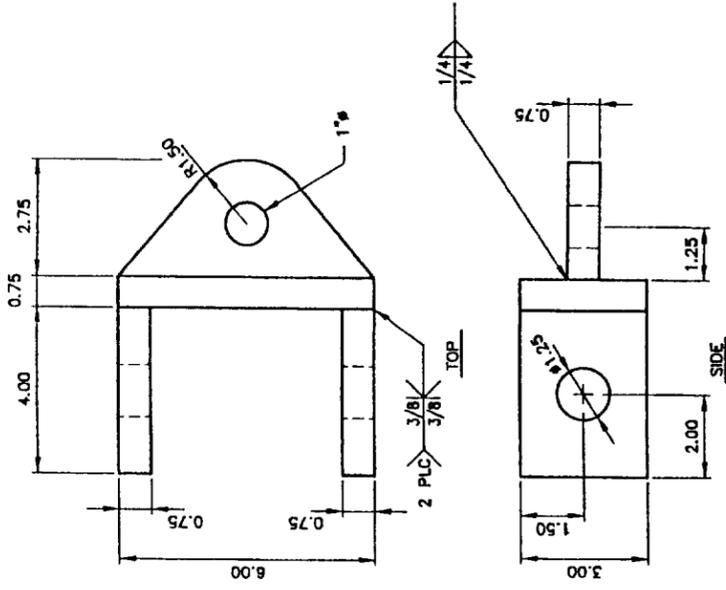
INEEL INSTITUTE FOR ENERGY EFFICIENT BUILDINGS	
SUBCONTRACT NO. N/A DESIGNER: S.A. DIMES DRAWN: B. SEARLE PROJECT NO. 021052 SPEC. CODE. SEE DRAWING NOTES FOR REVIEW/REVISION SIGNATURES SEE DRAWING NOTES EFFECTIVE DATE: 08/11/09	OU 7-10 GLOVEBOX EXCAVATOR METHOD PROJECT FACILITY FLOOR STRUCTURE (FFS) LIFTING LUG PLAN AND DETAILS SIZE: D 01MF3 DATE: 08/11/09 DWG: 519927 SCALE: NOTED SHEET: S-20



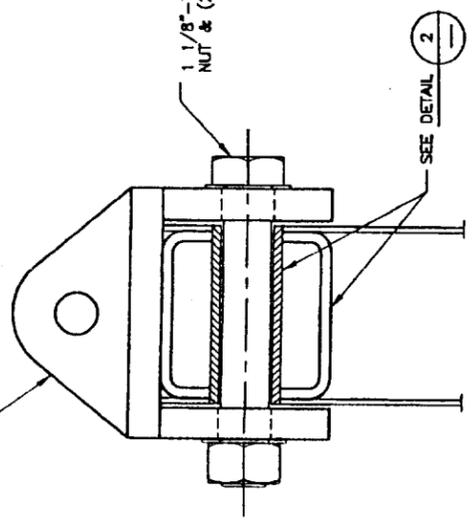
DETAIL 2
 SCALE: 8"=1'-0"



DETAIL 1
 SCALE: 8"=1'-0"
 MINIMUM OF 11 REQUIRED



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



REV	DESCRIPTION	EFFECTIVE DATE
1	GENERAL REVISION SEE DAR #09006	4-16-2002

OPENING LEGEND

TYPE	NOMINAL SIZE	QUANTITY	TYPE OF OPENING	GLAZING	POSITIONAL TOLERANCES	REMARKS
A	8'-0" X 4'-0"	5	WINDOW OPENING	LEXAN	HORIZ: ±3", VERT: +6"	OBSERVATION
B	30" DIAMETER	1	FRAMED OPENING	NONE	HORIZ: ±6", VERT: ±6"	AIR INLET - 1 1/2" MIN. FLANGE REQ'D
C	12" DIAMETER	4	FRAMED OPENING	NONE	HORIZ: ±6", VERT: ±6"	AIR INLET
D	2'-0" X 2'-0"	2	FRAMED OPENING	NONE	HORIZ: ±6", VERT: -6"	AIR INLET
E	4'-2 3/4" X 4'-2 3/4"	3	FRAMED OPENING	NONE	HORIZ: ±1", VERT: ±1"	OPENING FOR GLOVE BOX
F	2'-0" X 2'-0"	11	WINDOW OPENING	LEXAN	HORIZ: ±2", VERT: ±2"	OBSERVATION
G	2'-0" X 2'-0"	3	WINDOW OPENING	LEXAN	HORIZ: ±2", VERT: ±2"	CAMERA
H	1'-6" X 7'-6"	1	FRAMED OPENING	NONE	HORIZ: ±3", VERT: ±3"	HEPA INLET - 1 1/2" MIN. FLANGE REQ'D
J	6'-0" X 4'-7"	1	FRAMED OPENING	NONE	HORIZ: ±1", VERT: ±1"	OPENING FOR EXCAVATOR
K	8" DIAMETER	1	SEE NOTE 3	NONE	HORIZ: ±6", VERT: -3"	OPENING FOR GROUT AT LATER PHASE
L	4" DIAMETER	2	SEE NOTE 3	NONE	HORIZ: ±6", VERT: -3"	OPENING FOR AIR SAMPLING PORT
M	14" X 14"	1	FRAMED OPENING	NONE	HORIZ: ±6", VERT: ±6"	OPENING FOR FAN
N	2" X 3"	1	SEE NOTE 3	NONE	HORIZ: ±6", VERT: -6"	OPENING FOR BREATHING AIR
P	4" DIAMETER	1	SEE NOTE 3	NONE	HORIZ: ±6"	OPENING AT ROOF

DOOR OPENING LEGEND

TYPE	NOMINAL SIZE	QUANTITY	NOMINAL SIZE OF GLAZING	TYPE OF GLAZING	TYPE OF OPENING	REMARKS
1	3'-0" X 7'-0"	6	2'-0" X 2'-0"	LEXAN	DOOR OPENING	
2	6'-0" X 7'-0"	1	2'-0" X 2'-0"	LEXAN	DOOR OPENING	GLAZING IN EACH DOOR
3	10'-0" X 10'-0"	1			COILING DOOR OPENING	
4	4'-0" X 8'-0"	1			DOOR OPENING	NO DOOR REQUIRED - FRAMED OPENING ONLY
5	14'-0" X 12'-0"	1			DOOR OPENING	NO DOOR REQUIRED - FRAMED OPENING ONLY

NOTES

- PLAN DIMENSIONS ARE FROM INSIDE OF WALL TO INSIDE OF WALL (NOMINAL) OR FROM INSIDE OF WALL TO CENTER LINE (NOMINAL).
- SEE SHEETS A-3, A-4 & A-5 FOR WALL DIMENSIONS.
- PENETRATION TO BE FIELD CUT BY OTHERS.
- RETRIEVAL CONFINEMENT STRUCTURE BEARS ON 1/2" MINIMUM CARBON STEEL PLATE SUPPORTED BY CARBON STEEL WIDE FLANGE BEAMS.

RELEASED FOR RECORD ONLY
DO NOT FABRICATE

X-REF DRAWING
519871-1

FOR DRAWING INDEX SEE DRAWING NO. 519888

REVISION: 1
ORIGINAL SIGNED BY: SCOTT ALAN JENSEN
DATE ORIGINAL SIGNED: 4/16/02
SEAL NUMBER: 4003
ORIGINAL STORED AT: EROB DOCUMENT CONTROL

FOR REVIEW/PROVAL SIGNATURES
SEE DAR NO. 90072
EFFECTIVE DATE: 4/9/02
SAFETY CATEGORY: SS

FOR DRAWING INDEX SEE DRAWING NO. 519888
SUBCONTRACT NO. N/A
REQUESTER: SA, DIMES
DESIGNER: S. JENSEN
DRAWN: B. SEARLE
PROJECT NO. 021052
SPEC CODE REC REL
DESIGN PHASE: PERF SPEC

OU 7-10
GLOVEBOX EXCAVATOR METHOD PROJECT
RETRIEVAL CONFINEMENT STRUCTURE

FLOOR PLAN AND LEGENDS
DWG-519889
SCALE: NOTED

INTEEL

