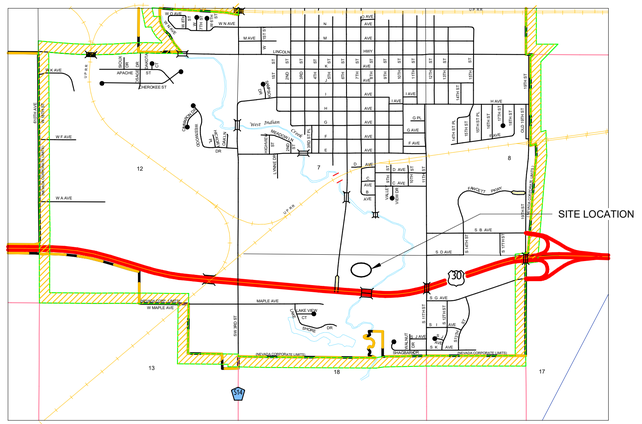
BOOMERANG

NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE REPAIR

457 S. 6th STREET NEVADA IOWA 50201

STRUCTURAL DRAWINGS	
S0.00	NOTES
S1.01	PLAN
S1.02	TOP & BOTTOM OF SLAB EL. AT 952.5
S1.03	TOP & BOTTOM OF SLAB EL. AT 952.5
S2.01	WALL ELEVATIONS
S2.02	WALL ELEVATIONS
S2.03	WALL ELEVATIONS
S2.04	WALL ELEVATIONS
S2.05	WALL ELEVATIONS
S2.06	WALL ELEVATIONS
S2.07	WALL ELEVATIONS
S2.08	WALL ELEVATIONS
S2.09	WALL ELEVATIONS
S2.10	WALL ELEVATIONS
S2.11	WALL ELEVATIONS
S2.12	WALL ELEVATIONS
S2.13	WALL ELEVATIONS
S2.14	WALL ELEVATIONS
S2.15	WALL ELEVATIONS
S2.16	WALL ELEVATIONS
S2.17	WALL ELEVATIONS
S2.18	WALL ELEVATIONS
S2.19	WALL ELEVATIONS
S2.20	WALL ELEVATIONS
S2.21	WALL ELEVATIONS
S2.22	WALL ELEVATIONS
S2.23	WALL ELEVATIONS
S2.24	WALL ELEVATIONS
S2.25	WALL ELEVATIONS
S2.26	WALL ELEVATIONS
S2.27	WALL ELEVATIONS
S2.28	WALL ELEVATIONS
S2.29	WALL ELEVATIONS
S2.30	WALL ELEVATIONS
S2.31	WALL ELEVATIONS
S2.32	WALL ELEVATIONS
S2.33	WALL ELEVATIONS
S3.01	CONCRETE REPAIR DETAILS

STORY COUNTY, IOWA



LOCATION MAP

SHUCK BRITSON

400 E COURT AVENUE
DES MOINES, IOWA 50309
PH 515/243-4477
FAX 515/243-4479

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ACQUAINT THEMSELVES AND ALL SUPERVISORY PERSONNEL WITH ALL DRAWINGS AND DOCUMENTS.
3. ALL CONSTRUCTION SHALL CONFORM TO INTERNATIONAL BUILDING CODE 2015 AND THE ORIGINAL DRAWINGS BY HR GREEN DATED 9/27/2021 UNLESS NOTED OTHERWISE.
4. IF CONFLICTS ARE FOUND BETWEEN DETAILS SHOWN ON THESE PLANS AND OTHER DISCIPLINES' PLANS OR MANUFACTURERS PRODUCTS, NOTIFY ENGINEER IMMEDIATELY FOR CLARIFICATION PRIOR TO PERFORMING WORK.
5. ALL MATERIALS TO BE USED IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
6. QUALITY CONTROL OF REPAIRS; ALL METHODS IN ORIGINAL CONTRACT AND PERIODIC REVIEWS AND OBSERVATIONS BY SBI.
7. QUESTIONS OF SOME AS-BUILT REINFORCED CONCRETE WALL ITEMS FOR NEVADA WWTF IMPROVEMENTS – PHASE 3 WERE IDENTIFIED IN:
   A. HRGREEN LETTER DATED 2022-10-17
   B. HRGREEN LETTER DATED 2022-12-07
   C. HRGREEN LETTER DATED 2023-03-02

   PROCESS TO PROVIDE RESPONSES TO THESE QUESTIONS:
   A. LOCATE ITEMS
      i. TERRACON GEOPHYSICAL EXPLORATION REPORT DATED 2022-12-01
      ii. SBI SITE VISITS DATED 2023-02-13, 2023-03-08, 2023-03-23 TECHNIQUES USED INCLUDED OBSERVATION AND SURFACE SOUNDING (HAMMER TAP)
      iii. ADDITIONAL TEST LOCATION IDENTIFIED ON THESE PLANS
   B. REPAIR EACH ITEM THAT IS LOCATED
      i. THESE REPAIR PLANS AND ATTACHMENTS ARE INTENDED TO CLEARLY AND CONCISELY DOCUMENT THE ITEMS LOCATED ABOVE AND INDICATE THE REPAIR FOR EACH ITEM.
   C. DOCUMENT REPAIR
      i PHOTOGRAPH PREPARED AREA.
      ii PHOTOGRAPH FINAL REPAIRED AREA.
8. PRODUCT DATA ATTACHMENTS:
   A. SIKAGARD - 62
   B. SIKACRETE - 211 SCC PLUS
   C. SIKA ARMATEC -110 EPOCEM
   D. SIKAQUICK FNP
   E. SIKAQUICK VOH

CONCRETE

1. ALL CONCRETE REPAIR SHALL BE IN ACCORDANCE WITH ACI 562 CURRENT EDITION.
2. CONCRETE TO BE IN ACCORDANCE WITH "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301 CURRENT EDITION)".
3. CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR TO BE: PER THE ORIGINAL HRGREEN DRAWINGS OR AS INDICATED ON THE WALL ELEVATIONS.

DEMOLITION AND REPAIRS

1. ENSURE SAFE PASSAGE OF PERSONS AROUND AREA OF DEMOLITION AND CONSTRUCTION. CONDUCT OPERATIONS TO PREVENT INJURY TO STRUCTURES, EQUIPMENT, OTHER FACILITIES AND PERSONS.
2. ALL REMOVALS OF EXISTING CONCRETE SHALL BE INITIATED WITH A NEAT, 1/2" DEEP STRAIGHT SAW CUT.
3. PROTECT EXISTING REINFORCING STEEL IN PLACE. EXERCISE EXTREME CARE TO AVOID DAMAGING EXISTING REINFORCEMENT.
4. EXACT LOCATION OF EXISTING REINFORCEMENT IS TO BE DETERMINED BY THE CONTRACTOR USING A REBAR LOCATOR OR SIMILAR METHOD.
5. LOCATE HOLES FOR ANCHORS/FASTENER TO AVOID EXISTING REINFORCEMENT.
6. IN THE EVENT OF CONFLICTS, NOTIFY ENGINEER PRIOR TO FIELD MODIFICATIONS OF DETAILS, CONNECTIONS, OR DIMENSIONS SHOWN ON THE DRAWINGS.

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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE REPAIR

BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

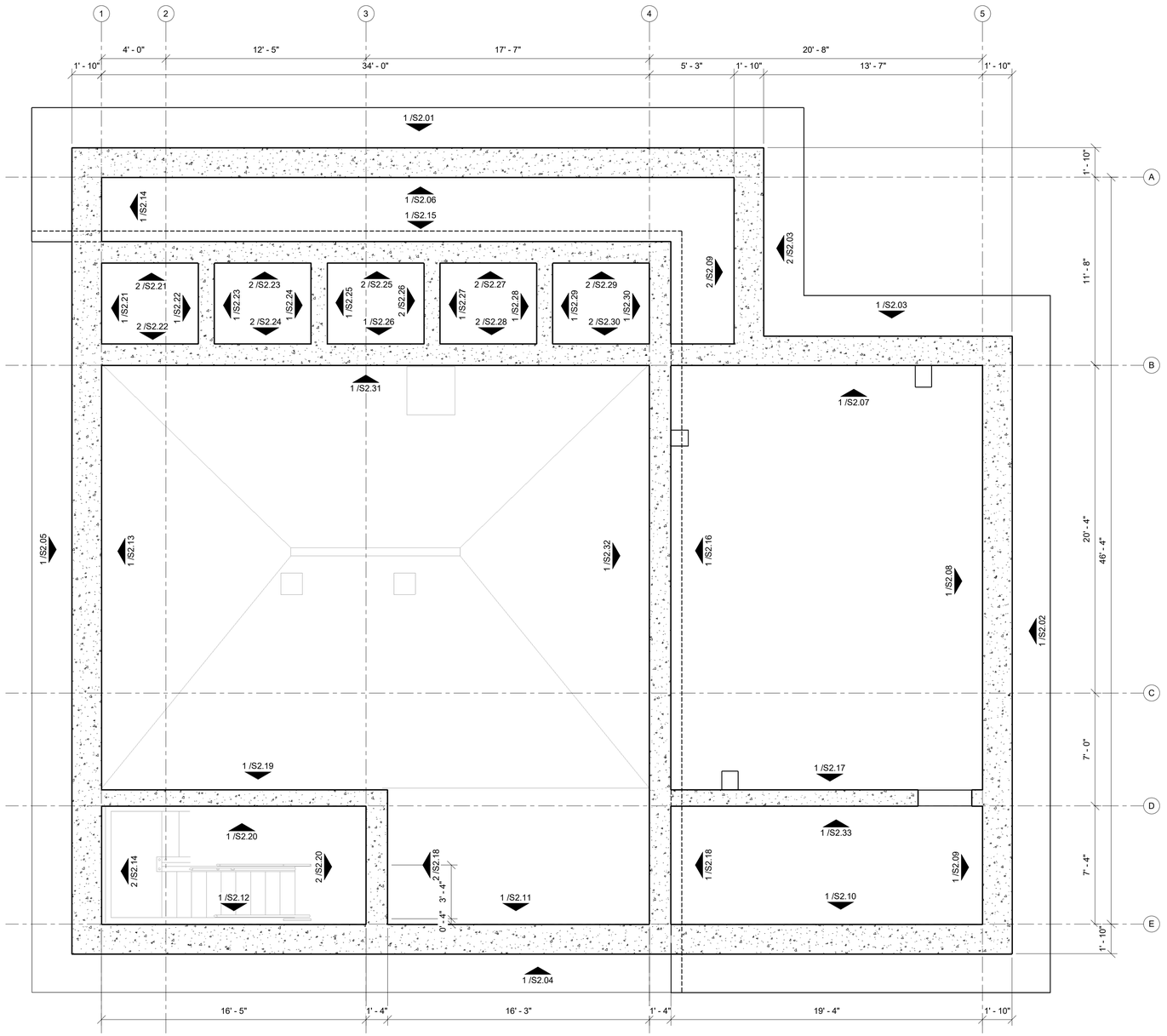
Project Status

PROJECT NUMBER 123.0172.03

DATE 01/20/2025

SHEET TITLE
NOTES

SHEET NO.
S0.00



4 SITE PLAN
1/4" = 1'-0"

NOTE : DIMENSIONS BASED UPON ORIGINAL DRAWINGS BY HRGREEN. FIELD VERIFY ALL DIMENSIONS. SEE ORIGINAL DRAWINGS FOR CONCRETE DETAILS AND REINFORCING.

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
PLAN

SHEET NO.
S1.01

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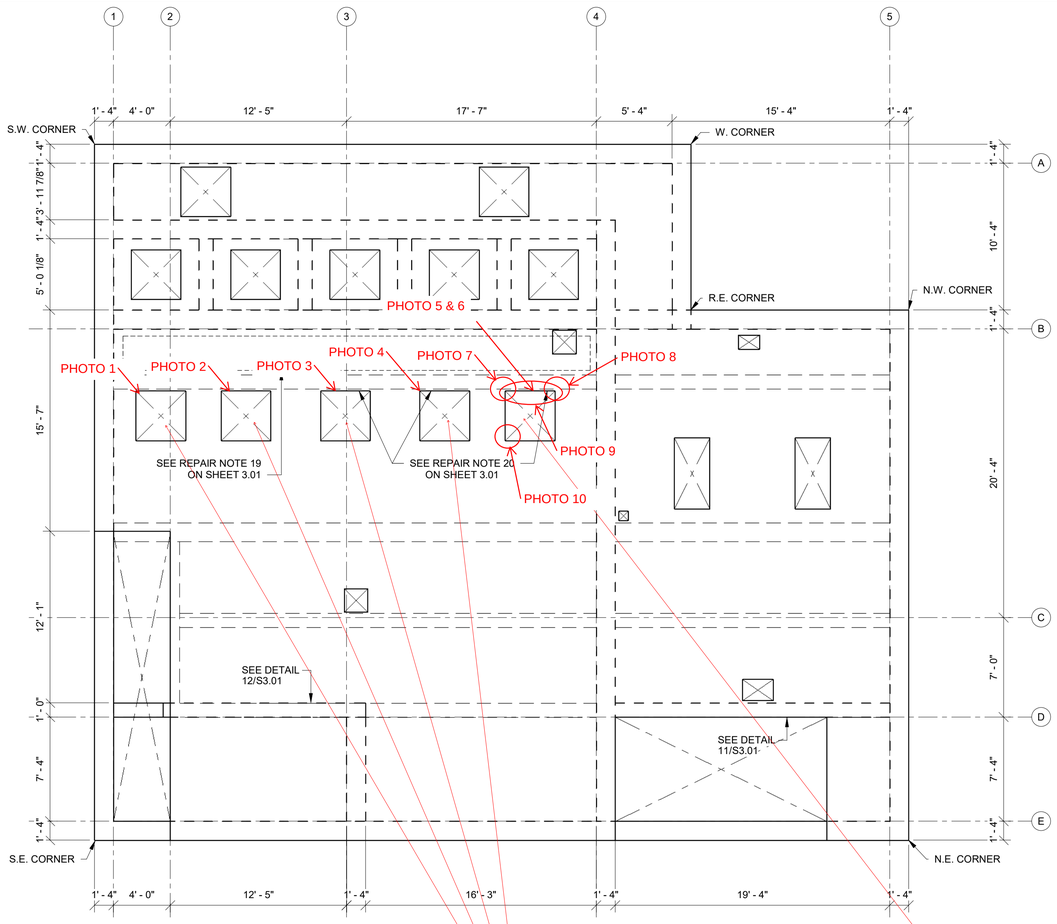


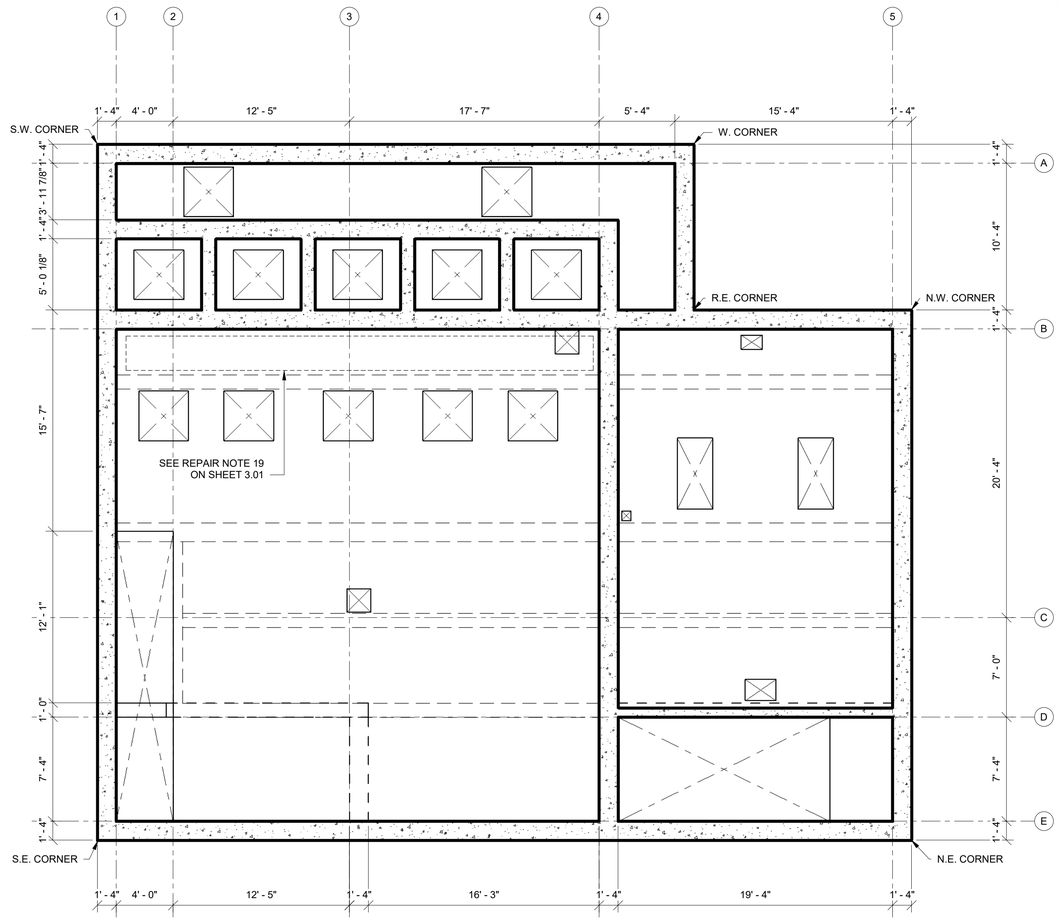
1 TOP OF SLAB PLAN @ EL. 952.50'

3/16" = 1'-0"

NOTE: REPAIR AREAS MARKED IN THE FIELD.

Sequence on hatch removals:
1. brace hatch in place
2. protect all exist reinforcing in place
3. initiate removals with neat ½" deep saw cut
4. carefully remove concrete (light chipping) from between the hatch and the existing reinforcing (do not damage the existing reinforcing)
5. carefully remove the hatch
6. carefully clean the hatch
7. place hatch in correct position
8. form and pour SIKACrete 211 SCC Plus.

Sequence on hatch removals:
1. carefully repair reinforcing as indicated.
2. place hatch in correct position
3. form and pour SIKACrete 211 SCC Plus



2 BOTTOM OF SLAB PLAN @ EL. 952.50'

3/16" = 1'-0"

NOTE: REPAIR AREAS MARKED IN THE FIELD.

Elevations:

Top Slab:
-Top of floor slab elevation did not align with plans and was uneven.
-Top of floor slab was lowered by grinding. Surface was prepared. Surecrete Resist Mortar and Surecrete Resist Sand Finish were installed to overlay the floor slab and bring it to plan elevation.
- No reinforcing was impacted by these adjustments
-Boomerang collected slab elevations using laser level based off of benchmark CO 80672 on 5/15/24 with HR Green Observer, all elevations aligned with plans.

Hatches:
-5 hatches were not installed in alignment with plan elevations.
-Reference above for corrective actions.
-Boomerang hatch elevations using laser level based off of benchmark CO 80672 on 5/15/24 with HR Green Observer, all elevations aligned with plans.

Elevation control:
CP 80672 (on HRG SHT. C.001),
Elev: 955.33 Northing: 3465504.05 Easting: 4934712.34
Description: Cut "X" located approximately northeast corner of existing splitter structure

HRG Sheet reference are from Nevada WWTF Improvements Phase 3 - Lift Station City of Nevada document

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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 06/07/2024

SHEET TITLE
TOP & BOTTOM OF SLAB EL. AT 952.5

SHEET NO.
S1.02

10/26/2023 3:18:14 PM
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Before Repair

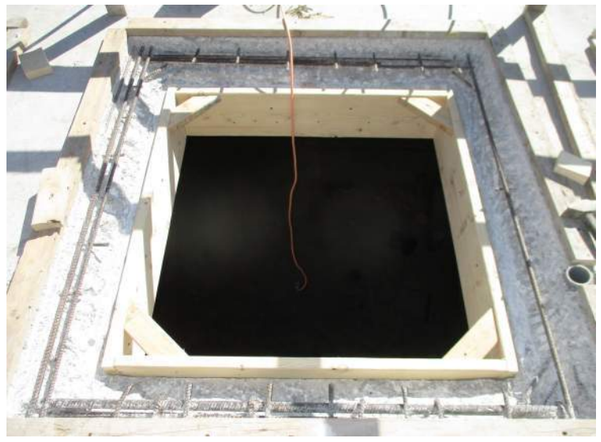
After Repair

PHOTO 1

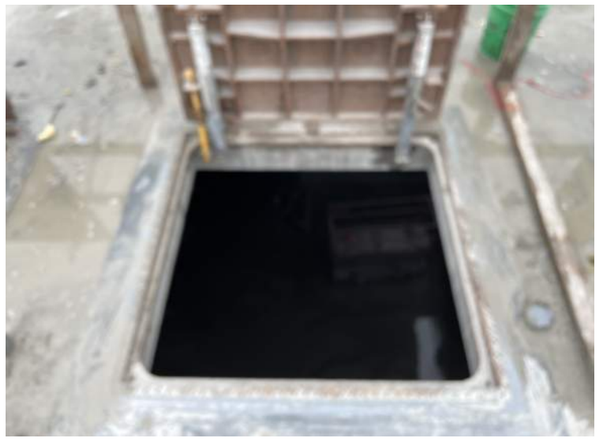
Before Repair

After Repair

PHOTO 2



Before Repair



After Repair

PHOTO 3

Before Repair

After Repair

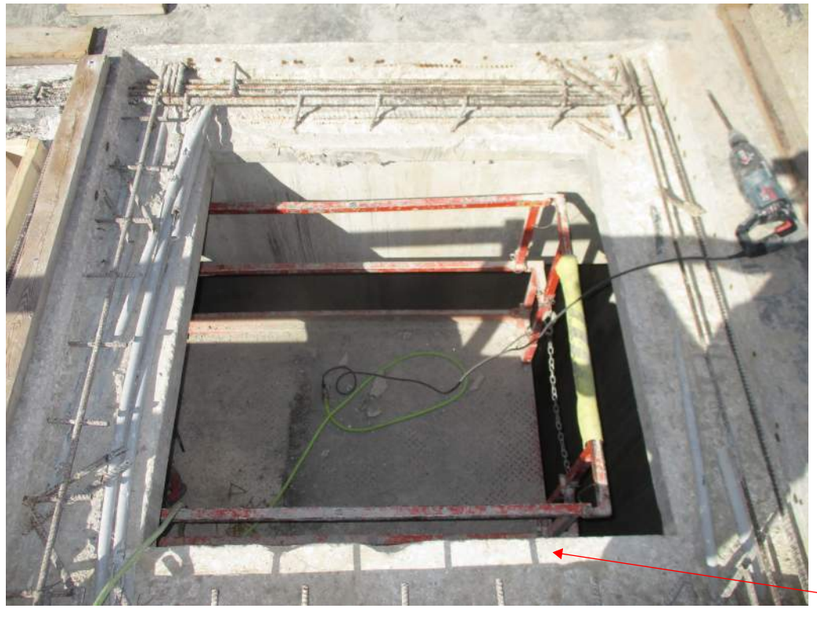
PHOTO 4

Before Repair

SEE DETAIL
1S/1.02 & 2S/1.02

After Repair

PHOTO 5



Before Repair

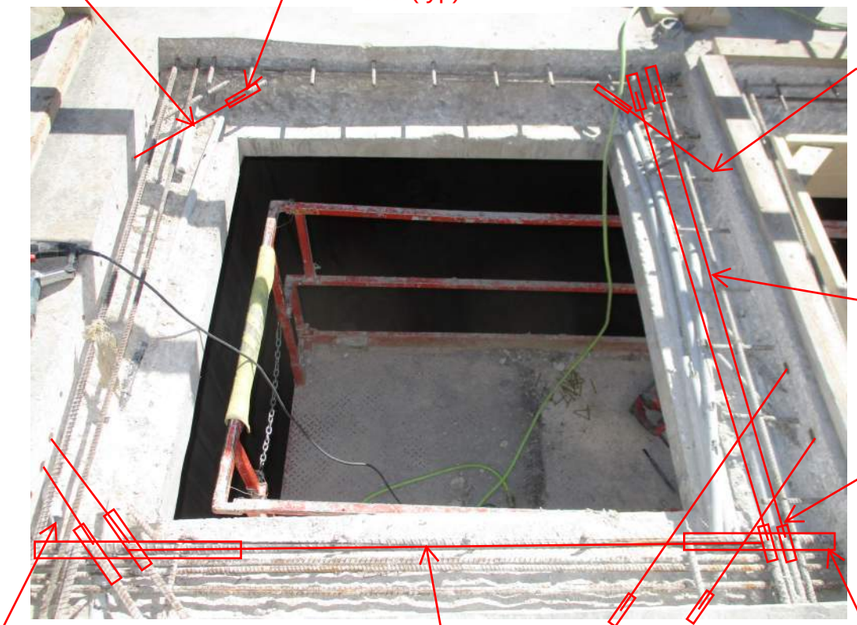
SEE DETAIL
1S/1.02 & 2S/1.02

After Repair

PHOTO 6

New #4 Diag. Bars to match existing (typ)

Bar Splice Dayton Superior D250 SCA Bar Lock 4S/CA Coupler, each end (typ)



but end of new bar to existing bar (typ)

New #4 Bars to match existing (typ)

Bar Splice Dayton Superior D250 SCA Bar Lock 4S/CA Coupler, each end (typ)

Bar Splice Dayton Superior D250 SCA Bar Lock 8S/CA Coupler, each end (typ)

N

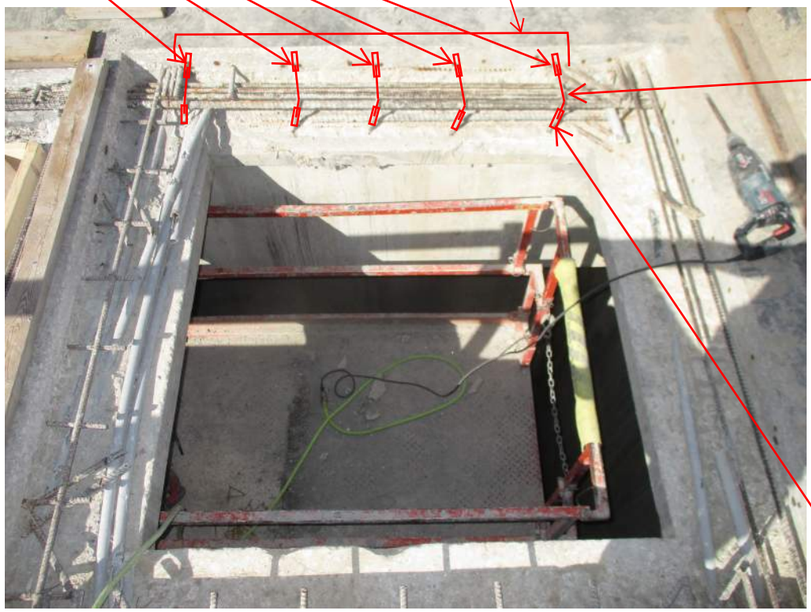
conduit repairs worked out btw others (typ)

carefully remove existing damaged #8 bar and provide new #8 Bars to match existing

DETAIL 1

carefully remove concrete to verify which are beam closed ties & to provide enough exposed bar to install couplers.

1. initiate removals with neat ½" deep saw cut
2. carefully remove concrete (light chipping)(do not damage the existing reinforcing)
3. remove only to depth required to place couplers and replace concrete topping.



New #4 (w/ 90 deg bend) bars to match existing (typ)

N

Bar Splice Dayton Superior D250 SCA Bar Lock 4S/CA Coupler, each end (typ)

DETAIL 2

S1.02

Before Repair

After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

Before Repair

After Repair

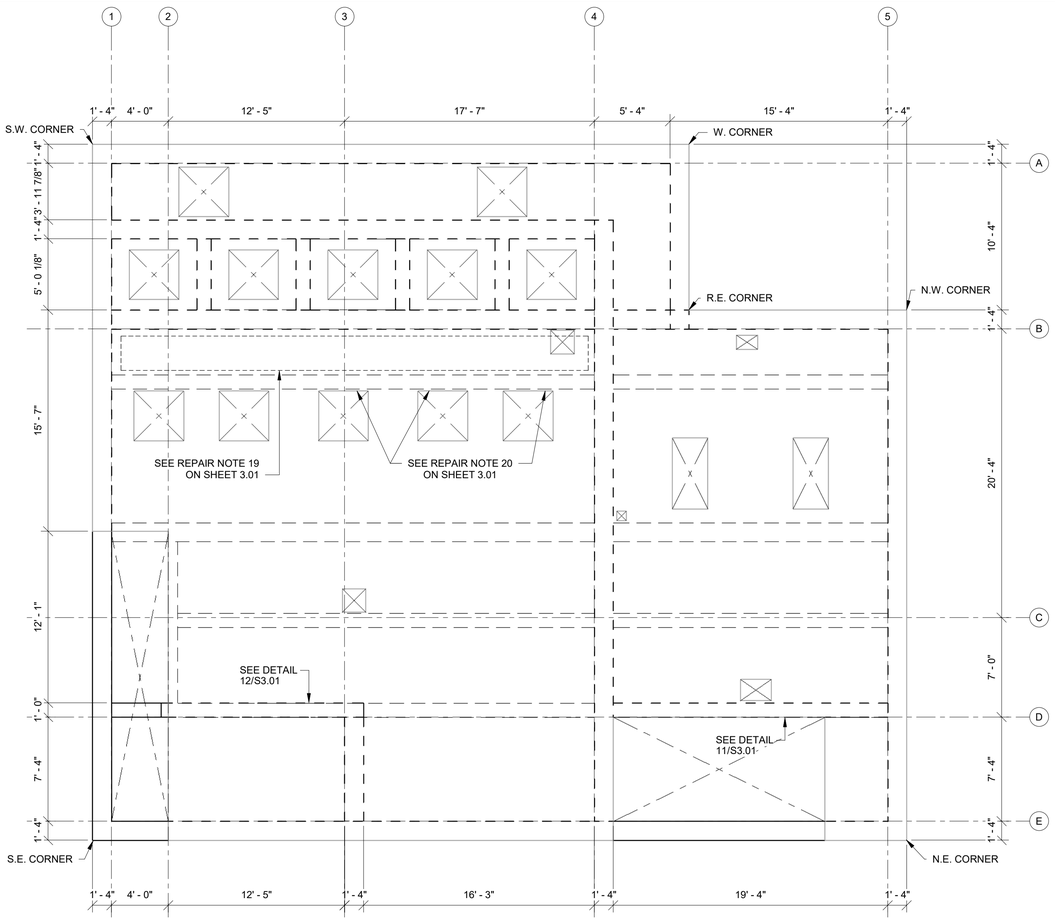
PHOTO 9

Before Repair

After Repair

PHOTO 10

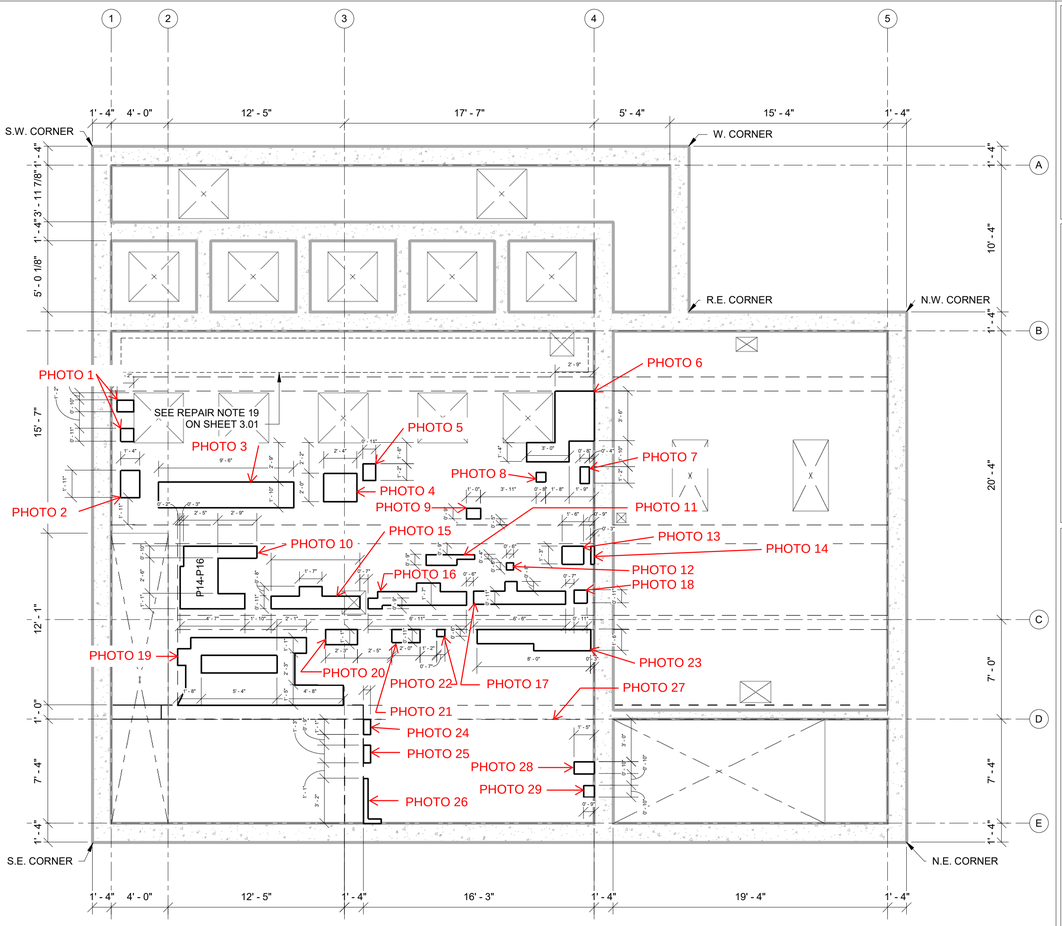
S1.02



1 TOP OF SLAB PLAN @ EL. 952.50'

3/16" = 1'-0"

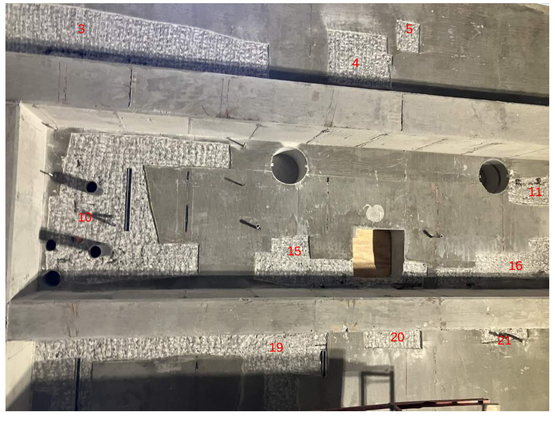
NOTE: REPAIR AREAS MARKED IN THE FIELD.



2 BOTTOM OF SLAB PLAN @ EL. 952.50'

3/16" = 1'-0"

NOTE: REPAIR AREAS MARKED IN THE FIELD.



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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 10/27/2023

SHEET TITLE

TOP & BOTTOM OF SLAB EL. AT 952.5

SHEET NO.

S1.03

4/30/2024 9:49:36 AM

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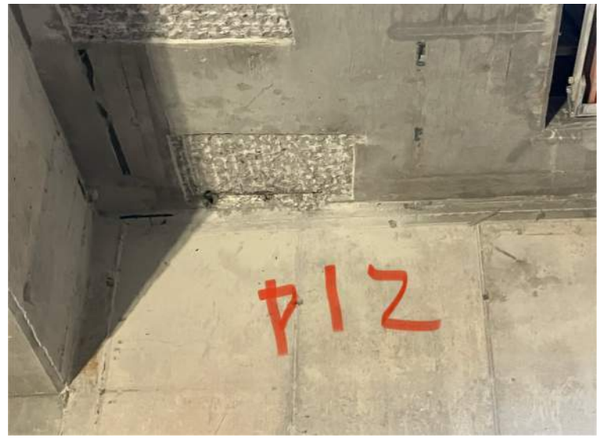
Before Repair

After Repair

PHOTO 1



Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

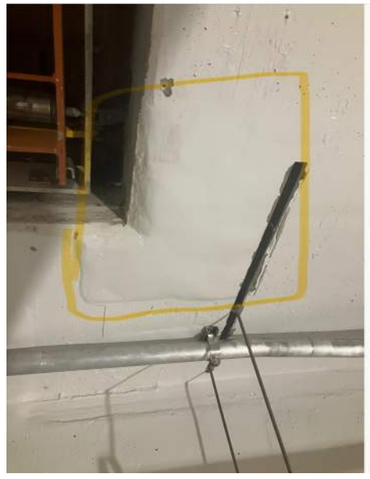
PHOTO 4

Before Repair

After Repair

PHOTO 5

Before Repair

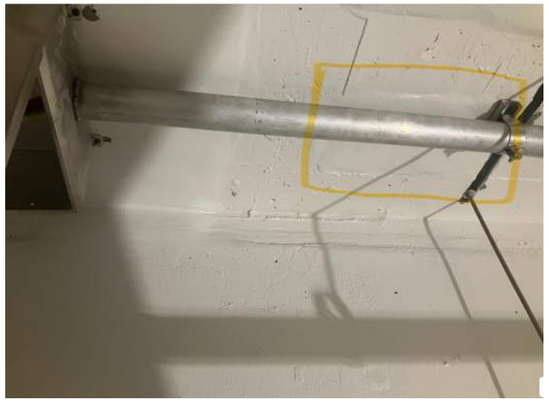


After Repair

After Repair

PHOTO 6

Before Repair



After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

Before Repair

After Repair

PHOTO 9

Before Repair

After Repair

PHOTO 10

Before Repair

After Repair

PHOTO 11

Before Repair

After Repair

PHOTO 12

Before Repair

After Repair

PHOTO 13

Before Repair

After Repair

PHOTO 14

Before Repair

After Repair

PHOTO 15

Before Repair

After Repair

PHOTO 16

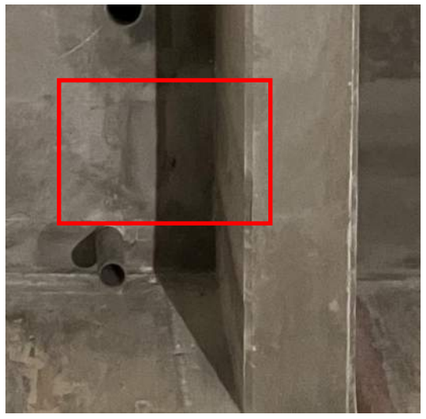
Before Repair

After Repair

PHOTO 17

Before Repair

Before Repair



After Repair

PHOTO 18

Before Repair

After Repair

PHOTO 19

Before Repair

After Repair

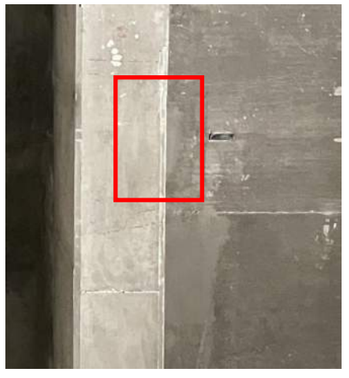
PHOTO 20

Before Repair

After Repair

PHOTO 21

Before Repair

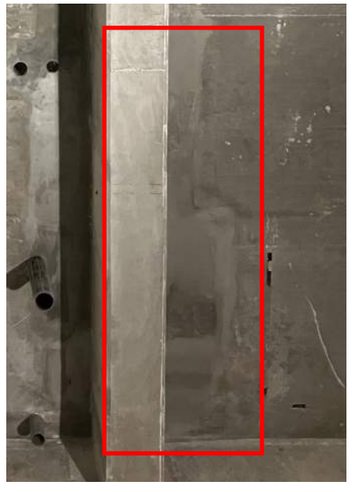


After Repair

PHOTO 22

Before Repair

Before Repair



After Repair

PHOTO 23

Before Repair

After Repair

PHOTO 24

Before Repair

After Repair

PHOTO 25

Before Repair

After Repair

PHOTO 26

Before Repair

After Repair

PHOTO 27

Before Repair

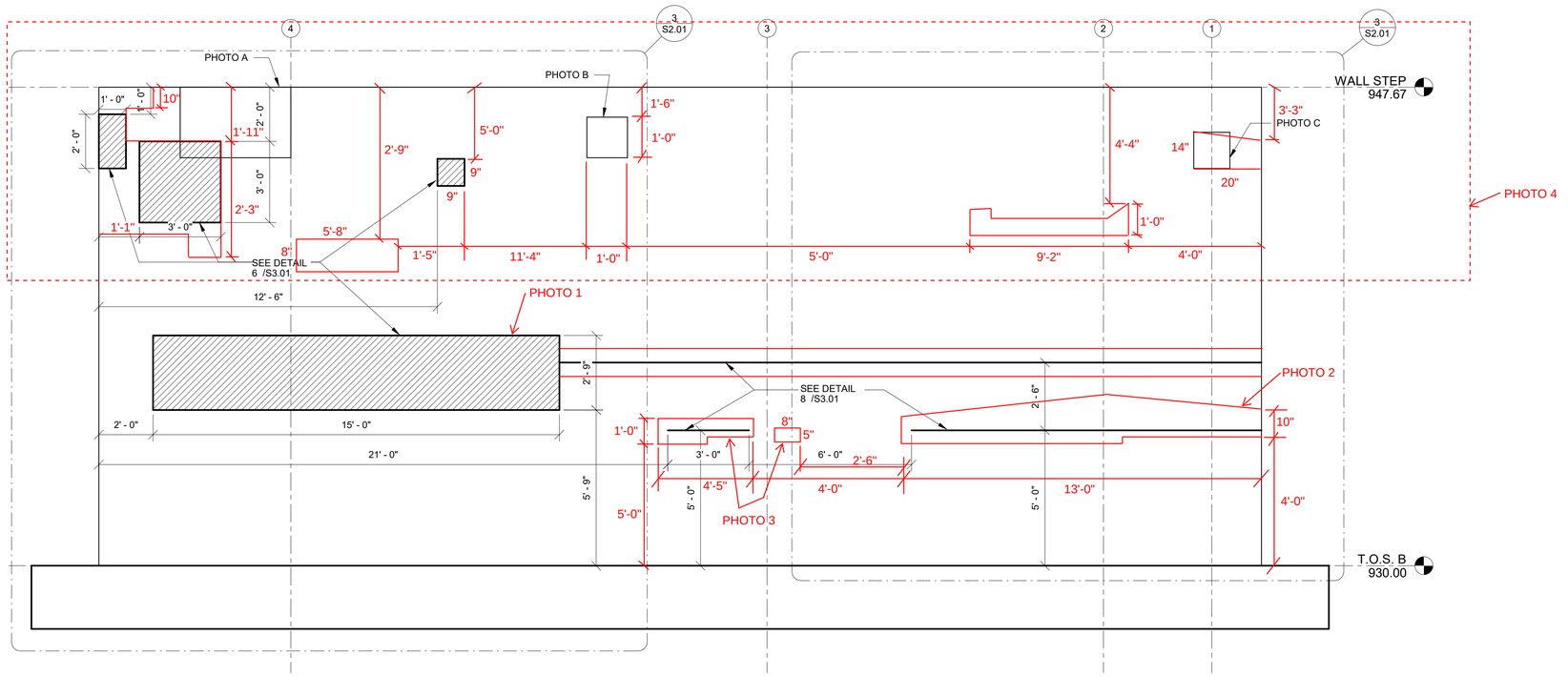
After Repair

PHOTO 28

Before Repair

After Repair

PHOTO 29



1 EXTERIOR ELEVATION
3/8" = 1'-0"

ORIGINAL REPAIRS

2 PHOTO A

3 PHOTO B

5 PHOTO C

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BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.01

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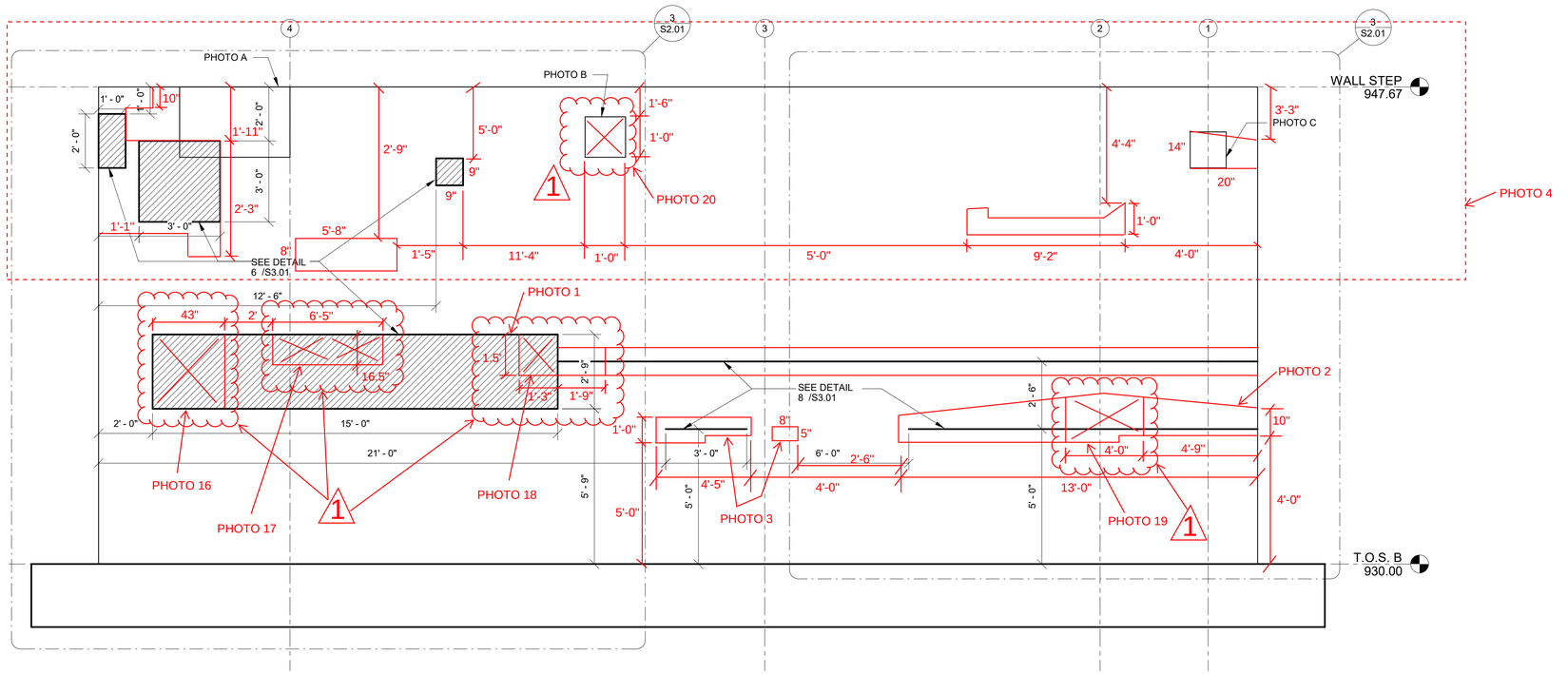

1 EXTERIOR ELEVATION
3/8" = 1'-0"

⚠1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

2 PHOTO A

3 PHOTO B

5 PHOTO C

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WALL ELEVATIONS

SHEET NO.
S2.01

3/24/2023 5:11:51 PM
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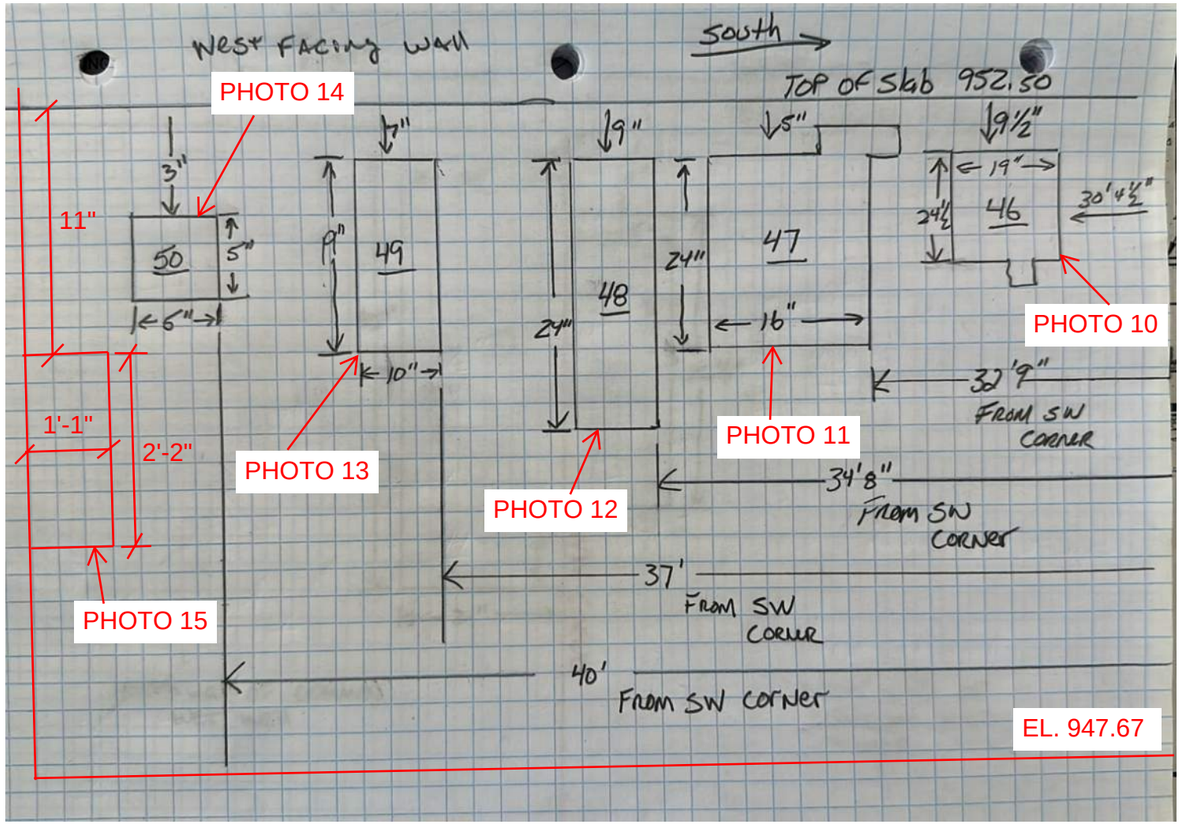
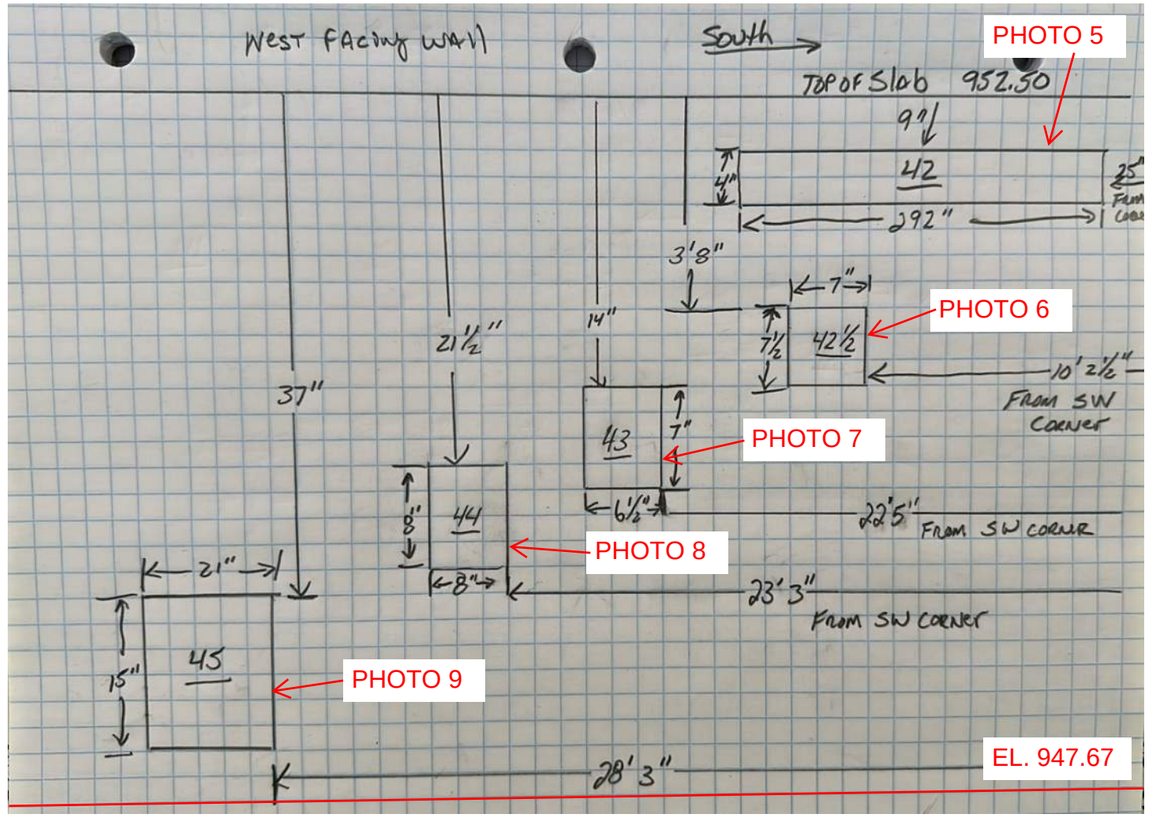

West Facing Wall
South
TOP of Slab 952.50
PHOTO 14
11"
3"
50
5"
6"
7"
9"
49
10"
PHOTO 13
1'-1"
2'-2"
PHOTO 15
9"
48
24"
PHOTO 12
5"
24"
47
16"
PHOTO 11
9½"
19"
24½"
46
30'4½"
PHOTO 10
32'9"
From SW Corner
34'8"
From SW Corner
37'
From SW Corner
40'
From SW corner
EL. 947.67


West Facing Wall
South
PHOTO 5
TOP of Slab 952.50
9"
4"
42
.25"
From SW Corner
292"
3'8"
7"
PHOTO 6
7½"
42½
10'2½"
From SW Corner
14"
37"
21½"
43
7"
PHOTO 7
6½"
22'5"
From SW Corner
8"
44
PHOTO 8
23'3"
From SW Corner
21"
15"
45
PHOTO 9
28'3"
EL. 947.67

S2.01

Before Repair

After Repair

After Repair

After Repair

After Repair

PHOTO 1

Before Repair

After Repair

Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

After Repair

PHOTO 4

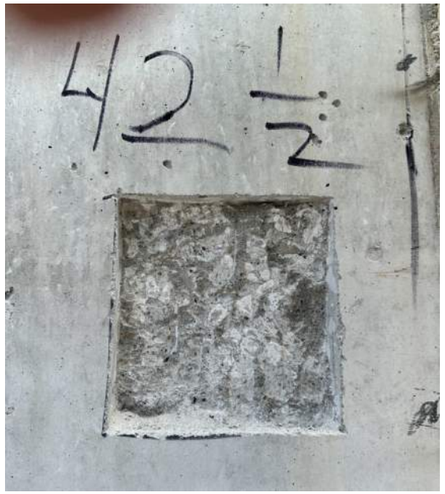
S2.01

Before Repair

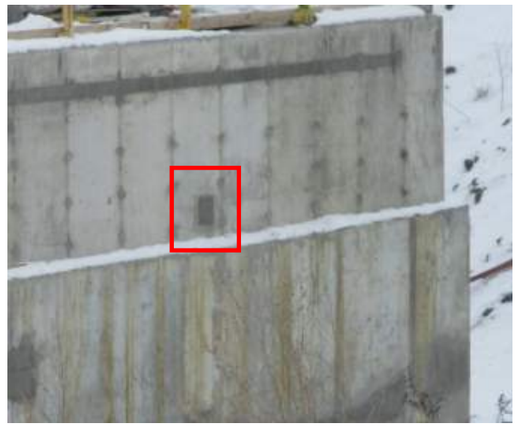
Before Repair

After Repair

PHOTO 5



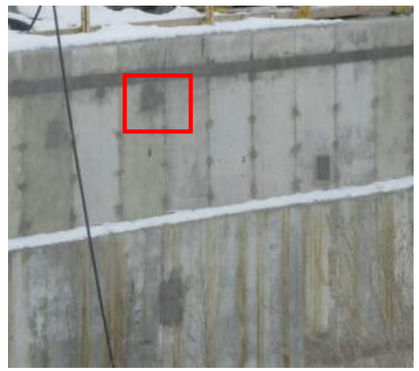
Before Repair



After Repair

PHOTO 6

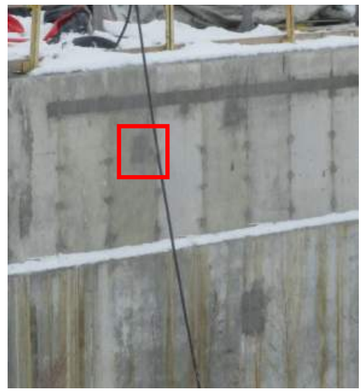
Before Repair



After Repair

PHOTO 7

Before Repair



After Repair

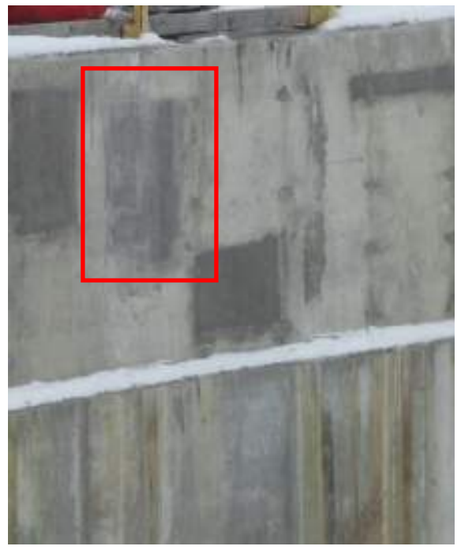
PHOTO 8

Before Repair

After Repair

PHOTO 9

Before Repair



After Repair

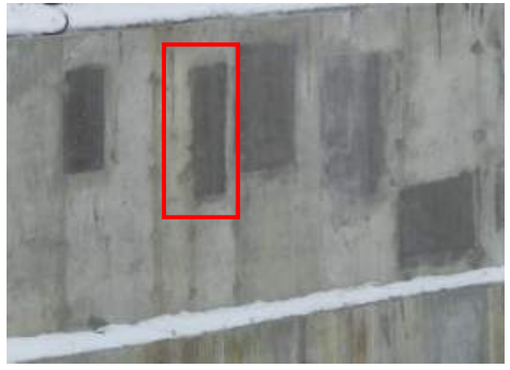
PHOTO 10

Before Repair

After Repair

PHOTO 11

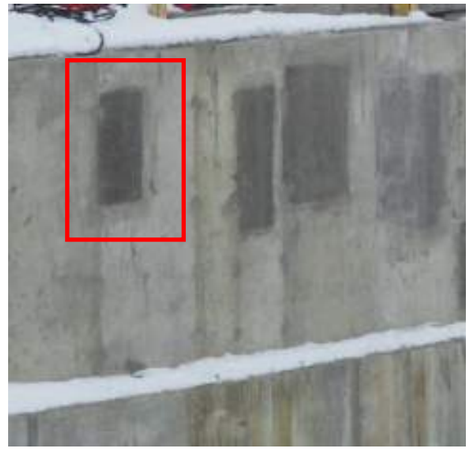
Before Repair



After Repair

PHOTO 12

Before Repair



After Repair

PHOTO 13

Before Repair

After Repair

PHOTO 14

Before Repair

After Repair

PHOTO 15

Before Repair

After Repair

PHOTO 16

Before Repair

After Repair

PHOTO 17

Before Repair

After Repair

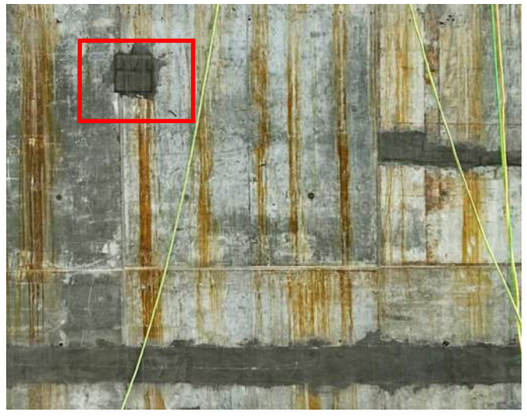
PHOTO 18

Before Repair

After Repair

PHOTO 19

Before Repair

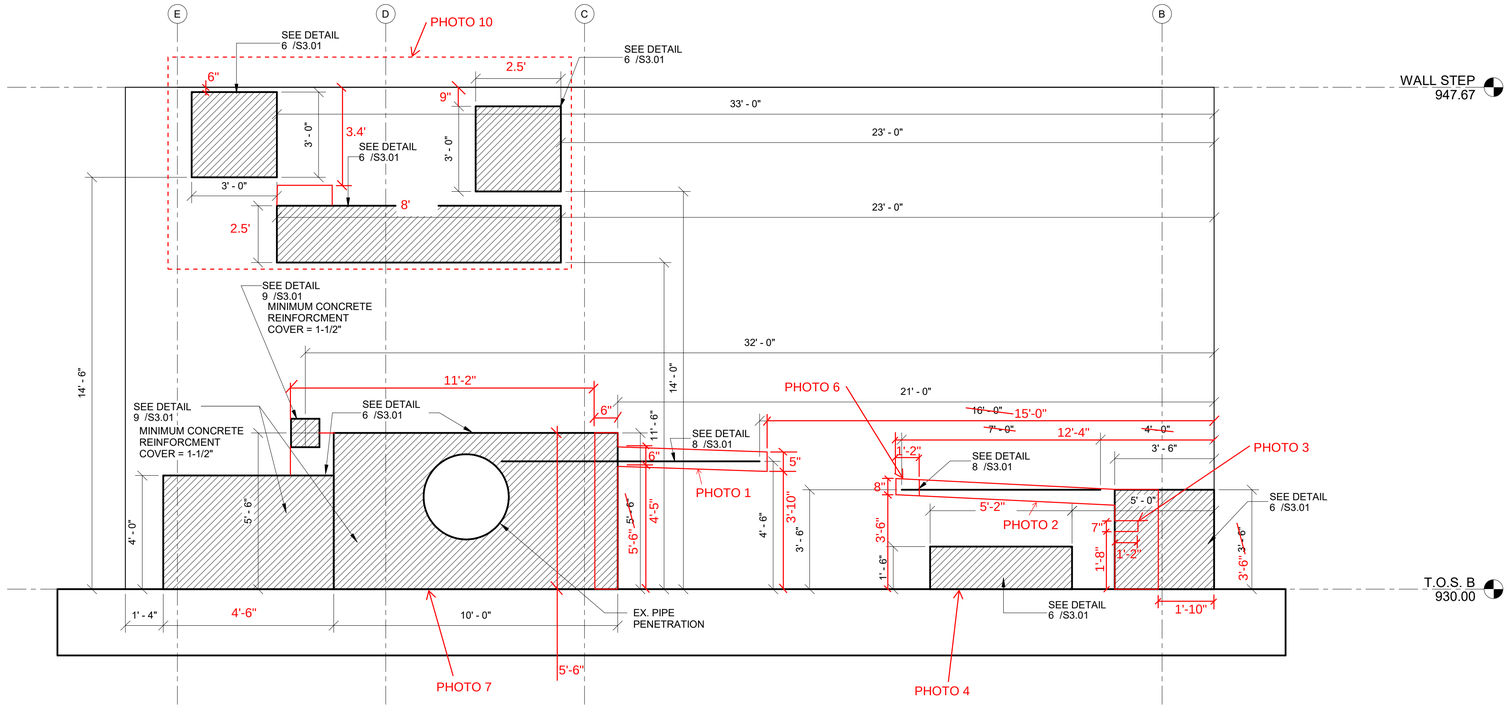


After Repair

PHOTO 20

1

S2.01



1 EXTERIOR ELEVATION
3/8" = 1'-0"

SHUCK BRITSON
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NEVADA WWTP IMPROVEMENTS LIMITED
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.02

3/24/2023 5:11:52 PM
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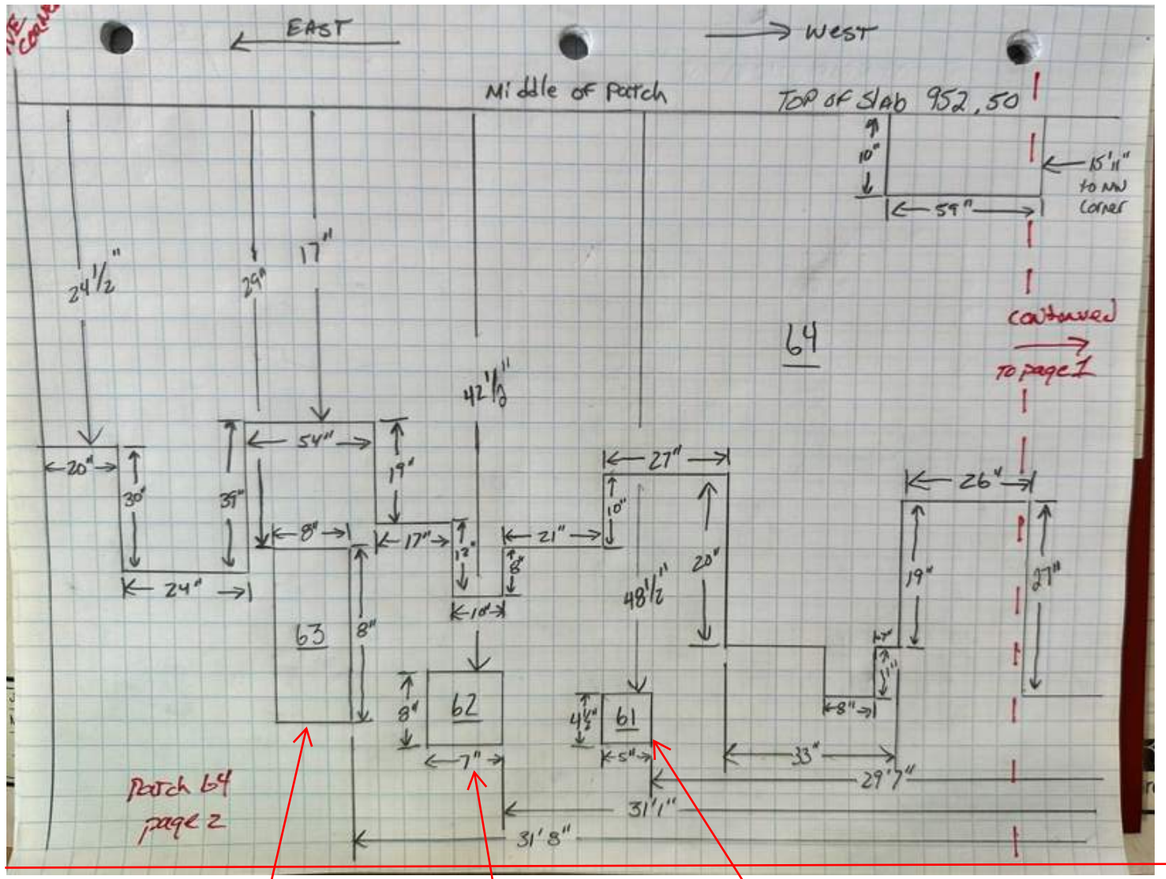


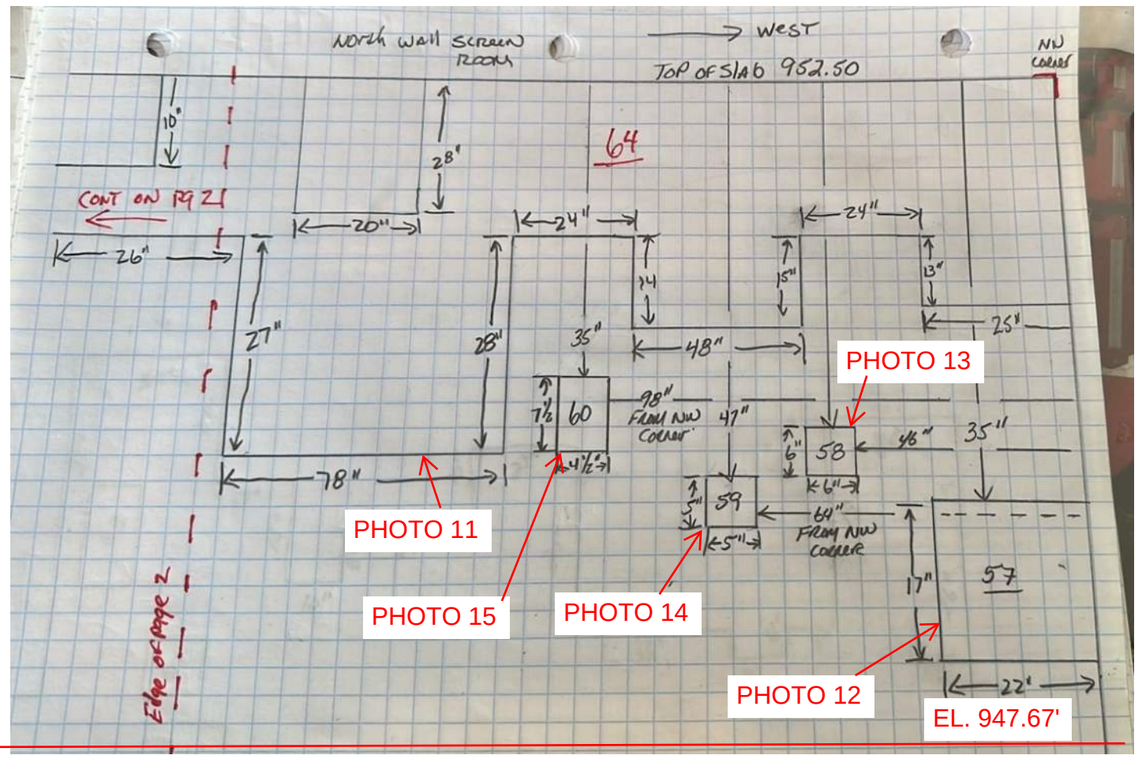
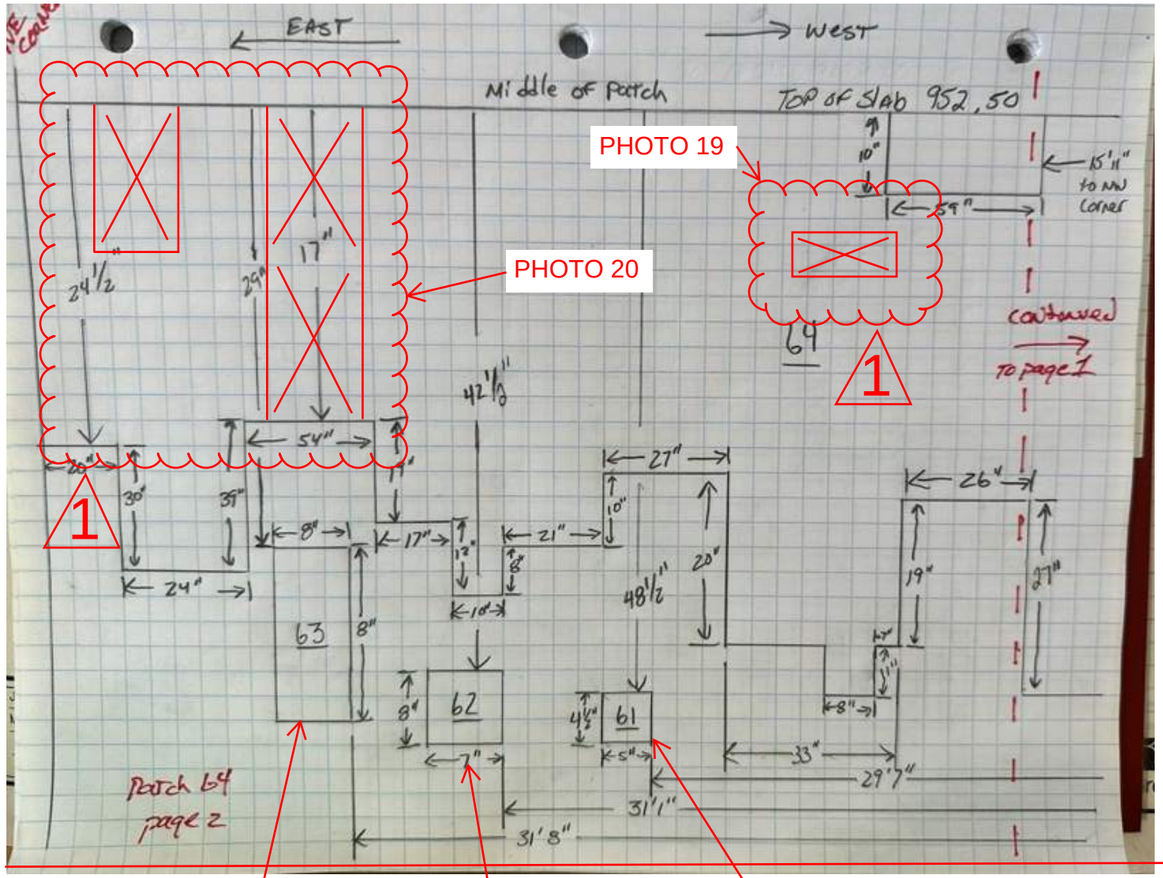
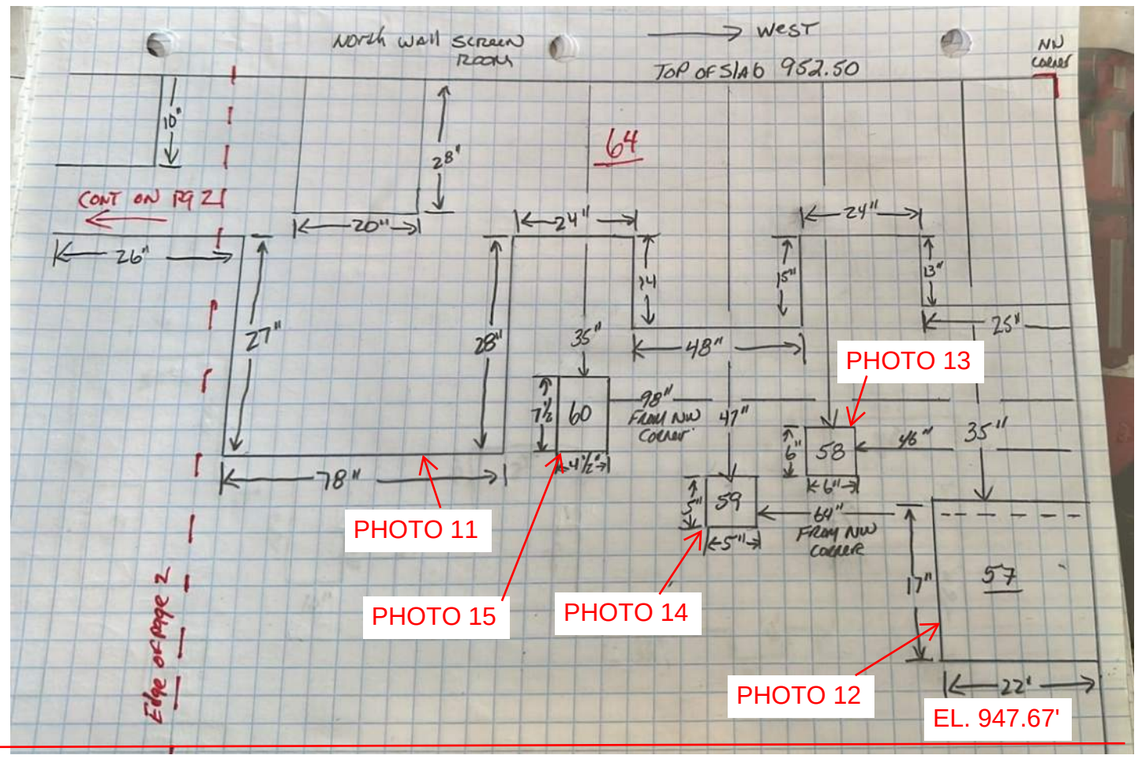


PHOTO 18
PHOTO 17
PHOTO 16
PHOTO 11
PHOTO 15
PHOTO 14
PHOTO 13
PHOTO 12
EL. 947.67'

ORIGINAL REPAIRS





⚠1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

╳ DENOTES REMOVAL

S2.02

Before Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

Before Repair

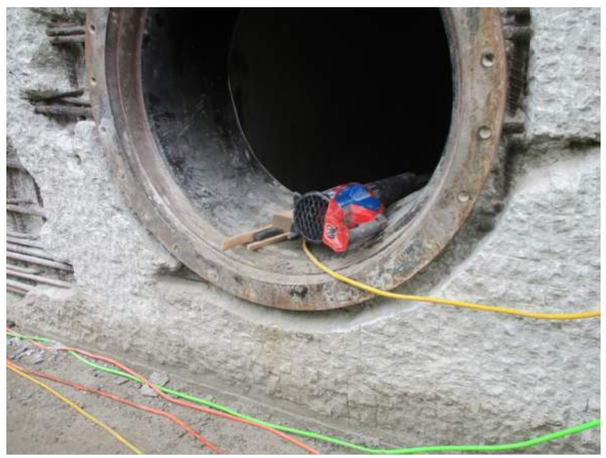
After Repair

PHOTO 6

Before Repair

Before Repair

PHOTO 7



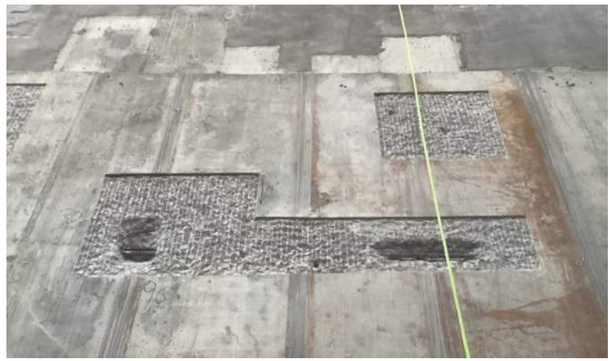
Before Repair

Before Repair

Before Repair

PHOTO 7

Before Repair



Before Repair

After Repair

After Repair

PHOTO 10

After Repair

PHOTO 10

Before Repair

Before Repair

Before Repair

Before Repair

PHOTO 11

Before Repair

Before Repair

After Repair

After Repair

PHOTO 11

After Repair

After Repair

After Repair

After Repair

PHOTO 11

Before Repair

After Repair

PHOTO 12

Before Repair

After Repair

PHOTO 13

Before Repair

After Repair

PHOTO 14

Before Repair

After Repair

PHOTO 15

Before Repair

After Repair

PHOTO 16

Before Repair

After Repair

PHOTO 17

Before Repair

After Repair

PHOTO 18

Before Repair

After Repair

PHOTO 19

Before Repair

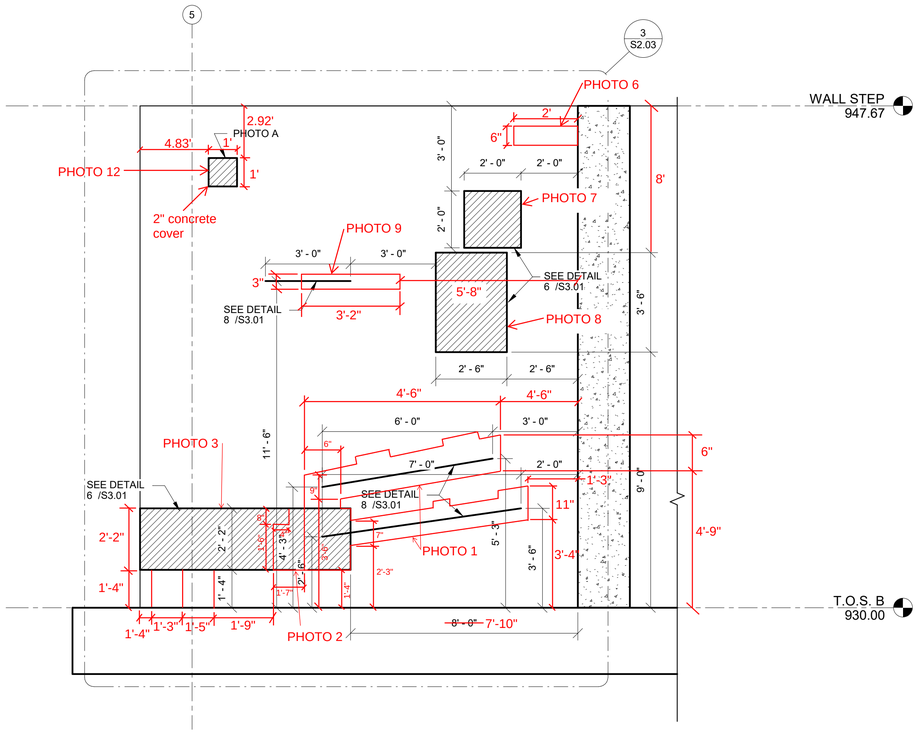
After Repair

PHOTO 20

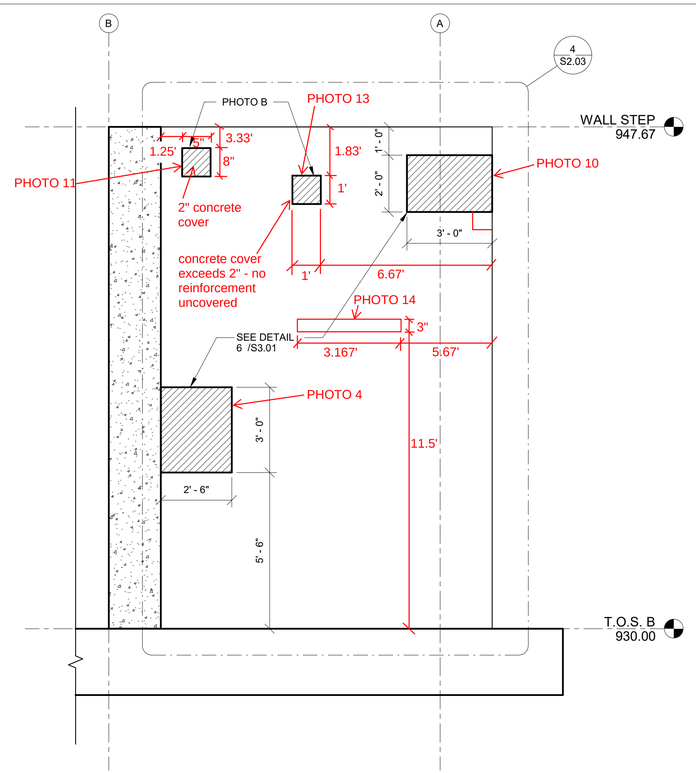
1

1

S2.02



1 EXTERIOR ELEVATION
3/8" = 1'-0"



2 EXTERIOR ELEVATION
3/8" = 1'-0"

3 PHOTO A

4 PHOTO B

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

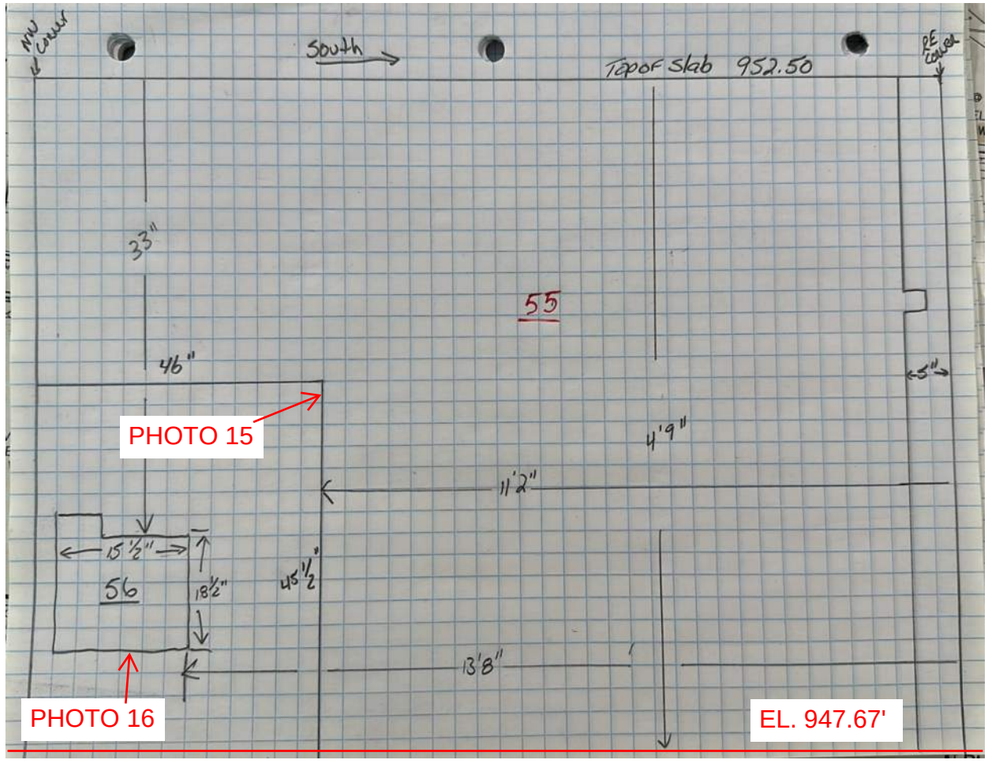
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

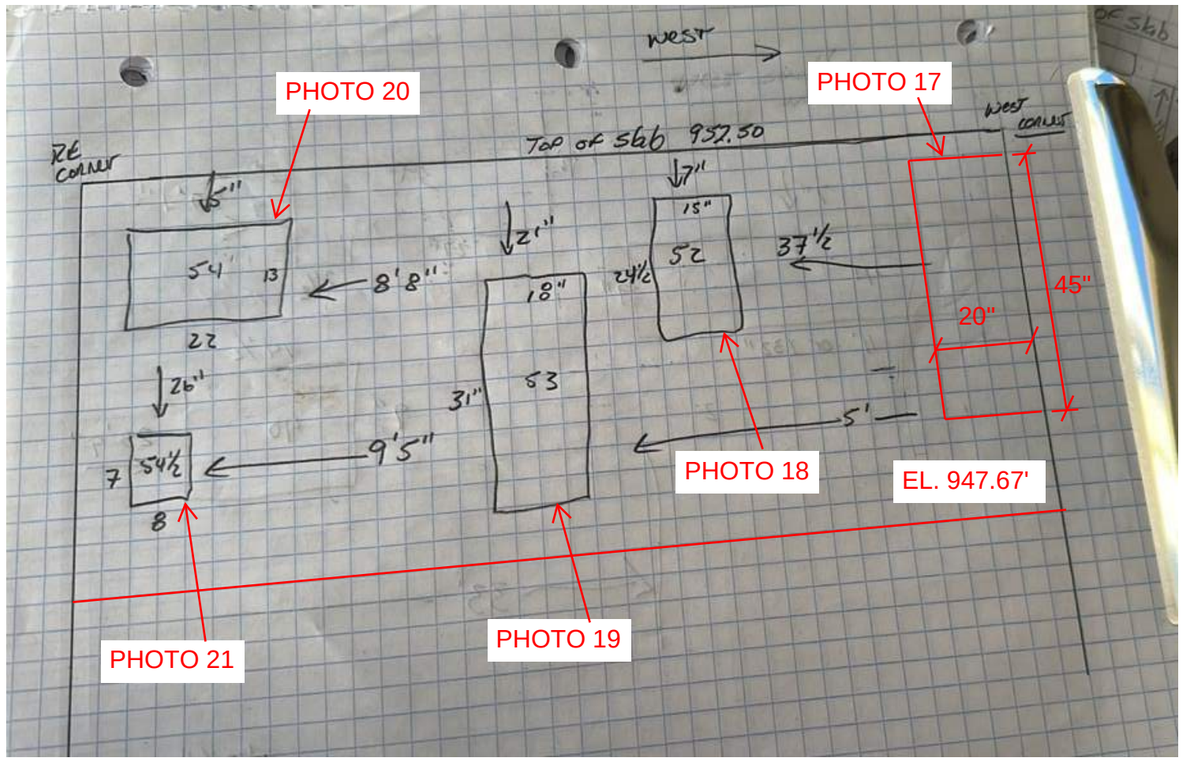
SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.03

3/24/2023 5:11:52 PM
C:\Users\shiner\Documents\123.0172.03_STRUC_(R23)_shinerHEBER.rvt



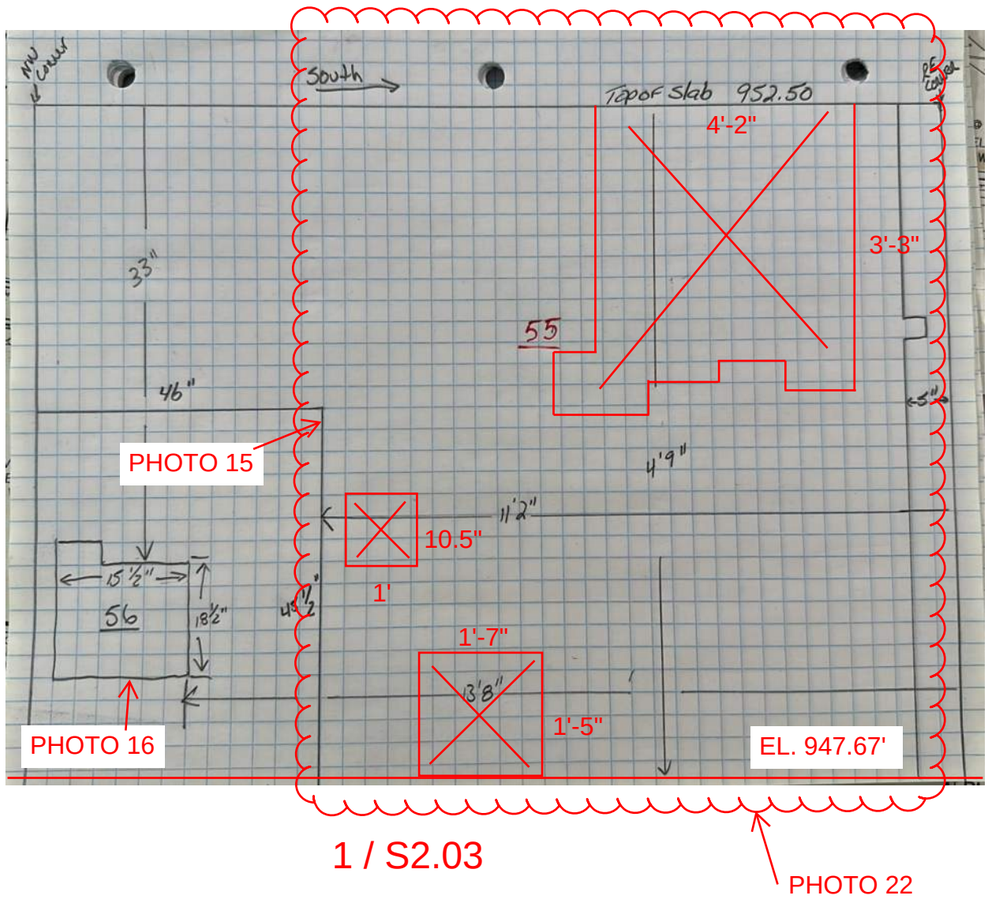
1 / S2.03



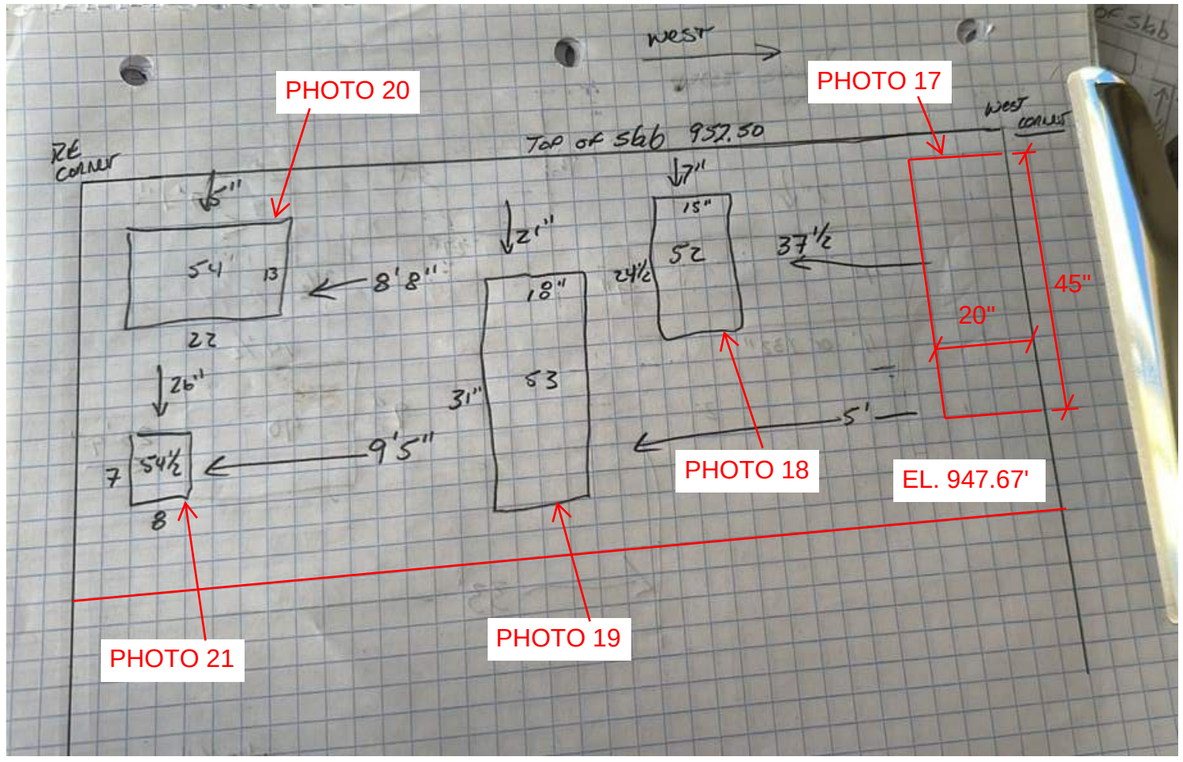
2 / S2.03

ORIGINAL REPAIRS

1



1 / S2.03



2 / S2.03

PHOTO 22

1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

Before Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

S2.03

Before Repair

After Repair

PHOTO 6

Before Repair

After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

Before Repair

After Repair

PHOTO 9

Before Repair

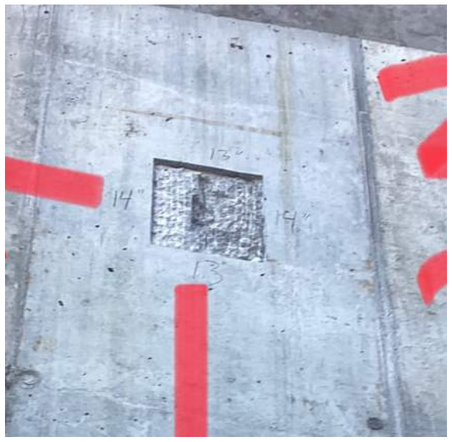
After Repair

PHOTO 10

Before Repair

After Repair

PHOTO 11



Before Repair

After Repair

PHOTO 12

Before Repair

After Repair

PHOTO 13

Before Repair

After Repair

PHOTO 14

Before Repair

After Repair

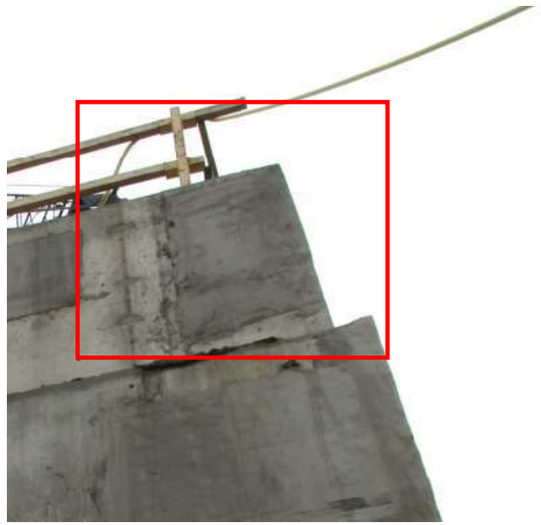
PHOTO 15

Before Repair

After Repair

PHOTO 16

Before Repair



After Repair

PHOTO 17

Before Repair

After Repair

PHOTO 18

Before Repair

After Repair

PHOTO 19

Before Repair

After Repair

PHOTO 20

Before Repair

After Repair

PHOTO 21

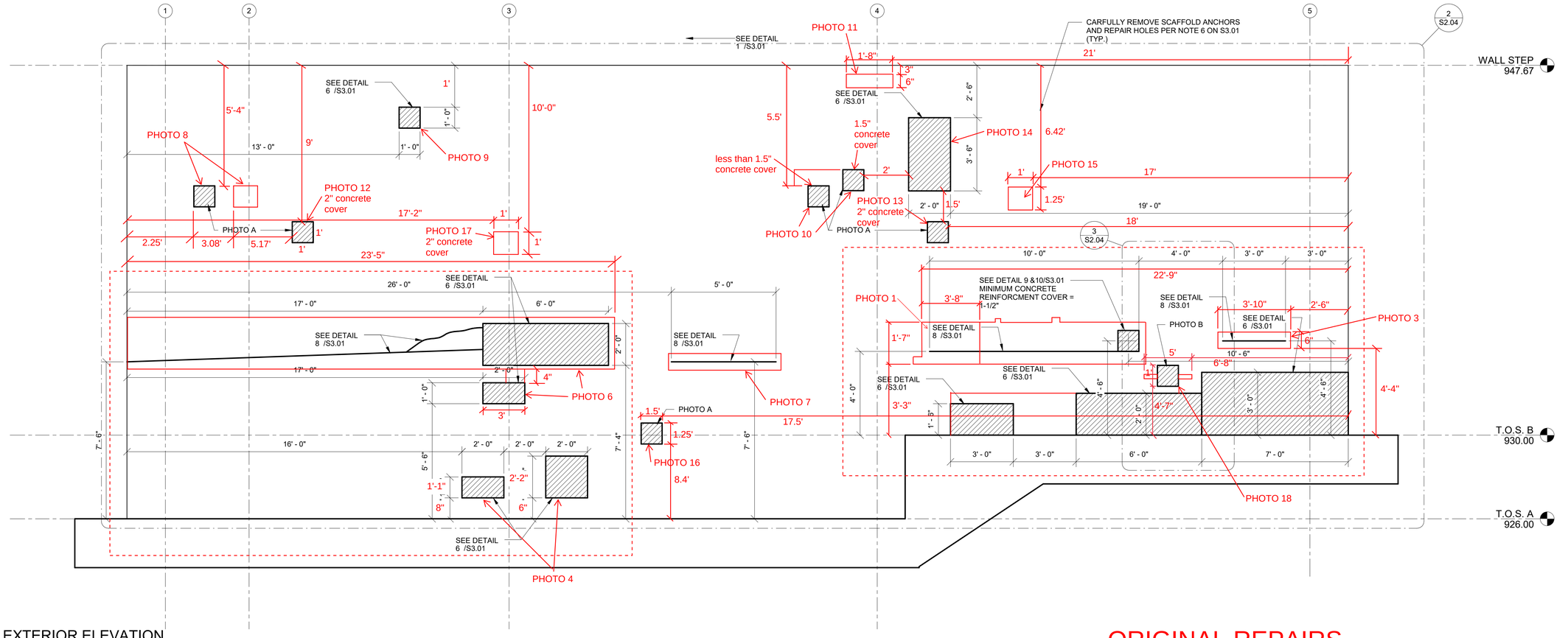
Before Repair

After Repair

PHOTO 22

1

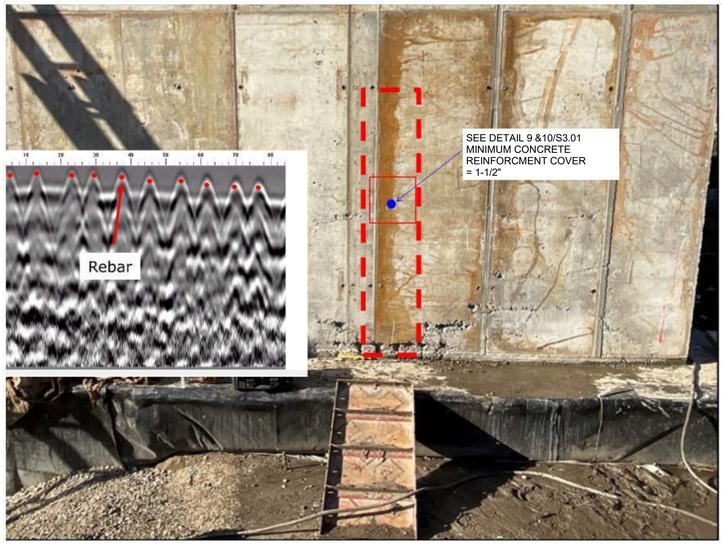
S2.03



1 EXTERIOR ELEVATION
3/8" = 1'-0"

2 PHOTO A

ORIGINAL REPAIRS



3 PHOTO B

SHUCK BRITSON
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DES MOINES, IOWA 50309
515-243-4477
www.shuck-britson.com

NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

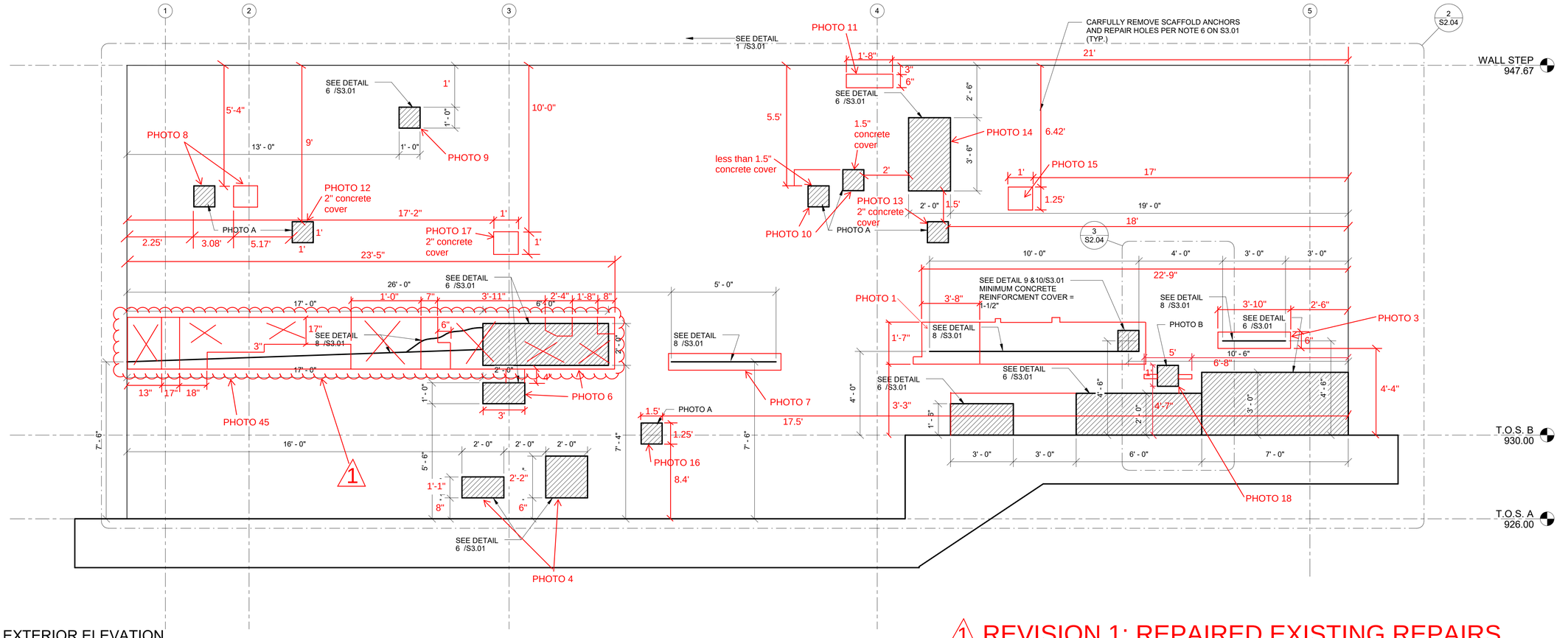
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.04

3/24/2023 5:11:53 PM
C:\Users\chinze\Documents\123.0172.03_STRUC_(R23)_chinzeHEBER.rvt



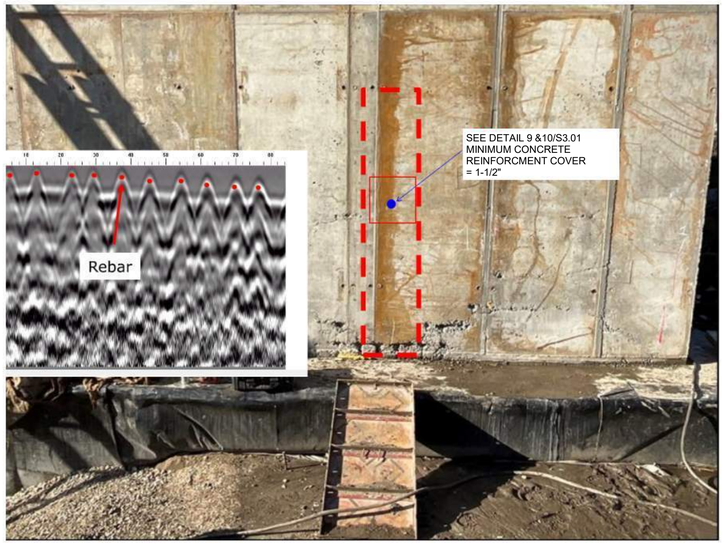
1 EXTERIOR ELEVATION
3/8" = 1'-0"

2 PHOTO A

⚠1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL



3 PHOTO B

SHUCK BRITSON
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DES MOINES, IOWA 50309
515-243-4477
www.shuck-britson.com

NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.04

3/24/2023 5:11:53 PM
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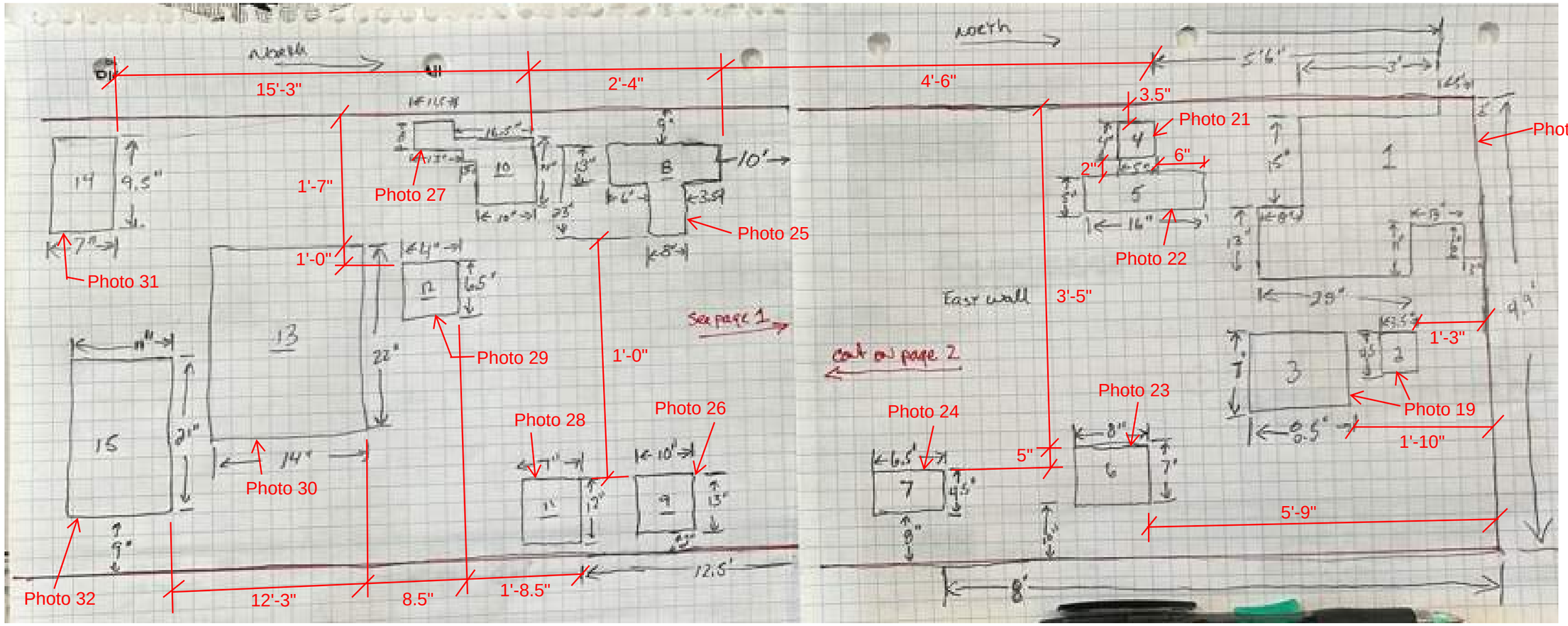
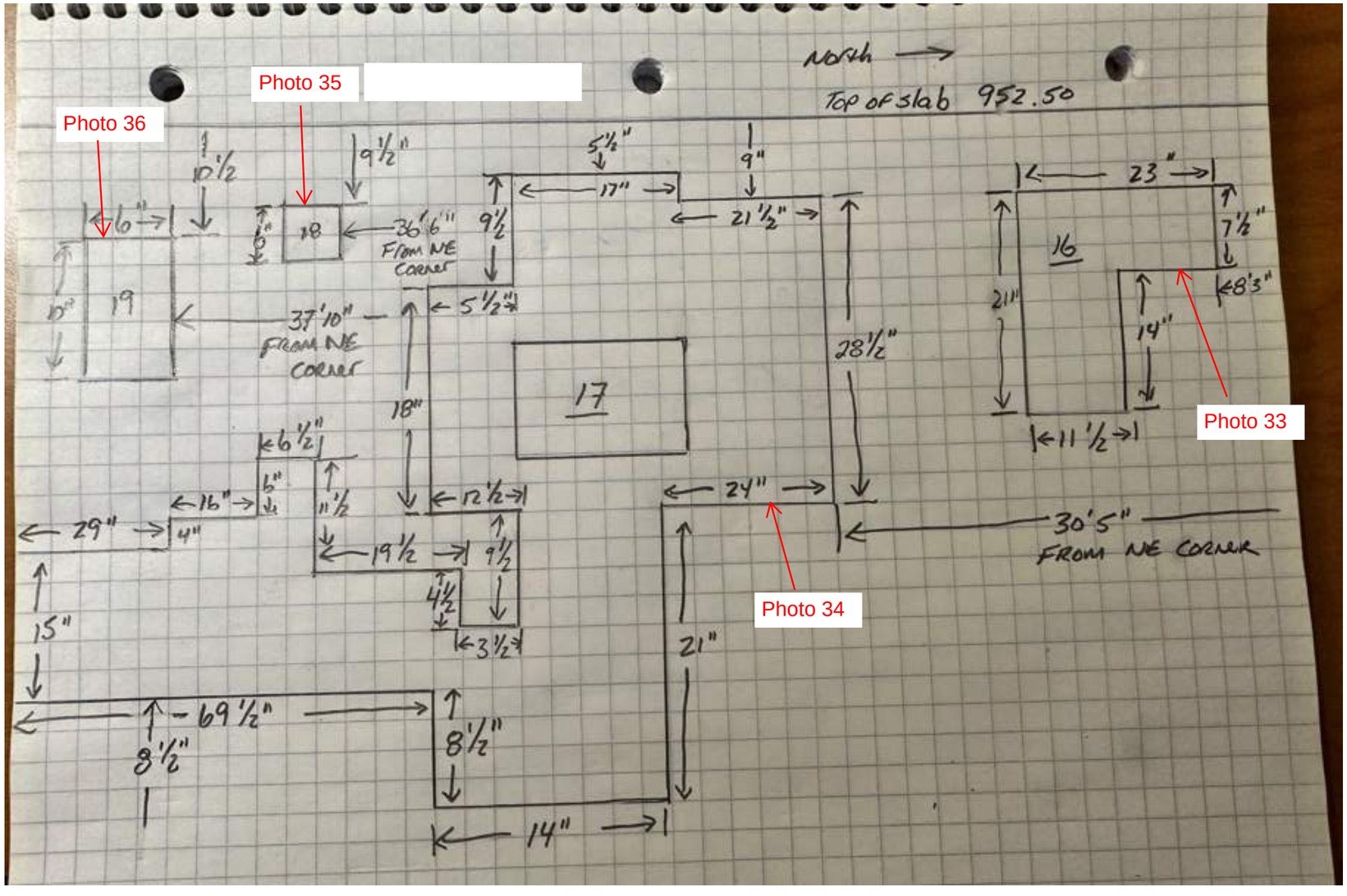
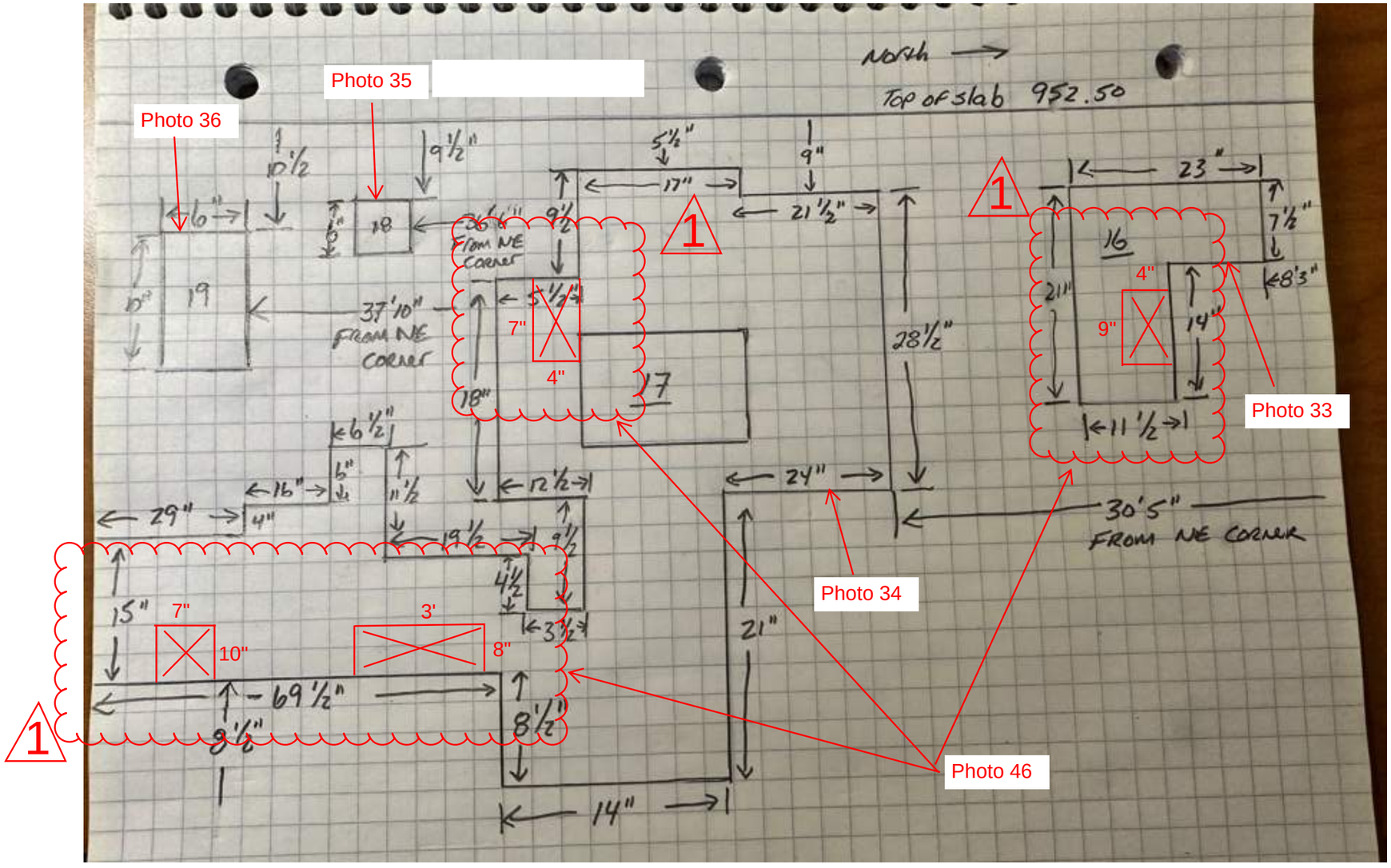

North
15'-3"
2'-4"
1'-7"
1'-0"
1'-0"
Photo 31
Photo 27
Photo 25
Photo 29
Photo 28
Photo 26
Photo 30
Photo 32
12'-3"
8.5"
1'-8.5"
See page 1
East wall
3'-5"
Cont on page 2
4'-6"
3.5"
Photo 21
Photo 22
Photo 20
Photo 24
Photo 23
Photo 19
1'-10"
1'-3"
5"
5'-9"
8'

S2.04



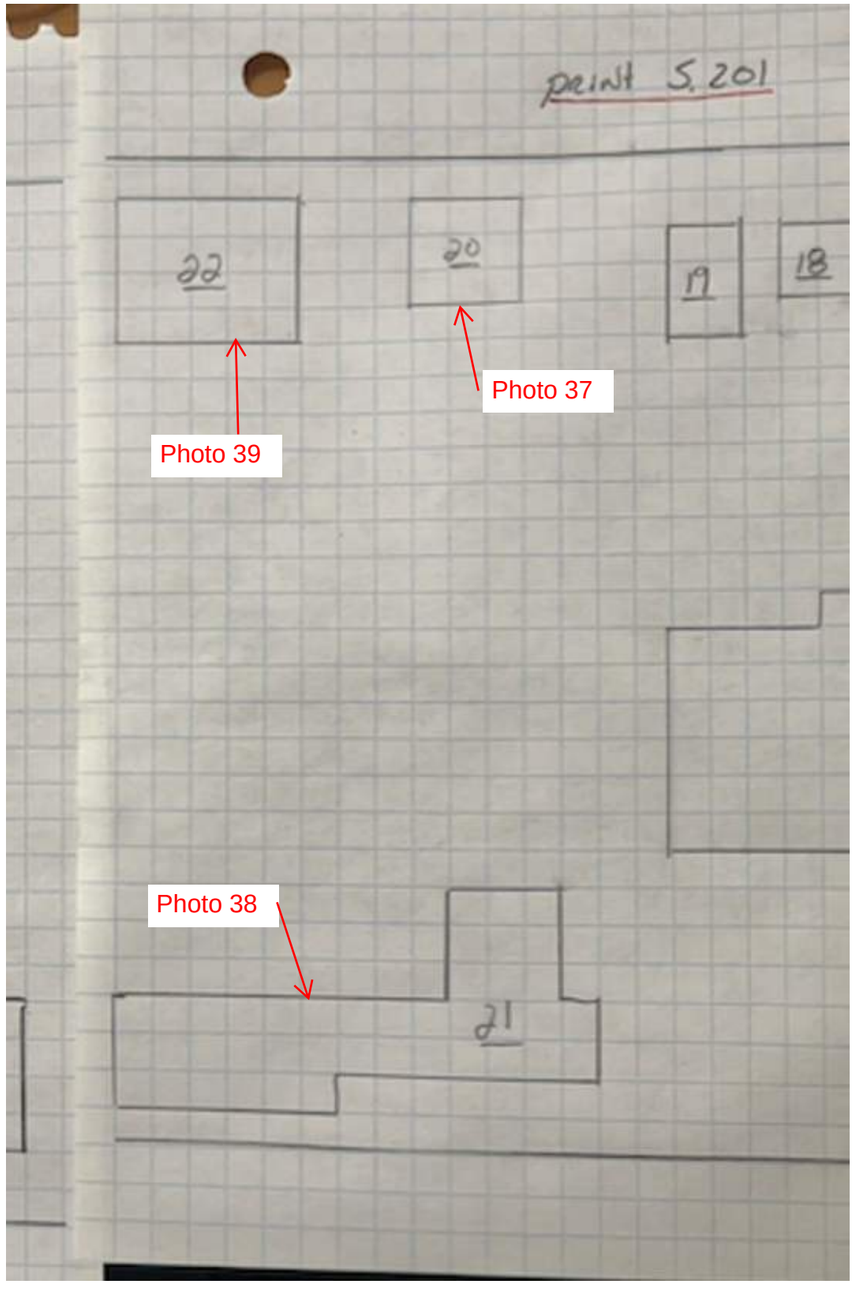
ORIGINAL REPAIRS

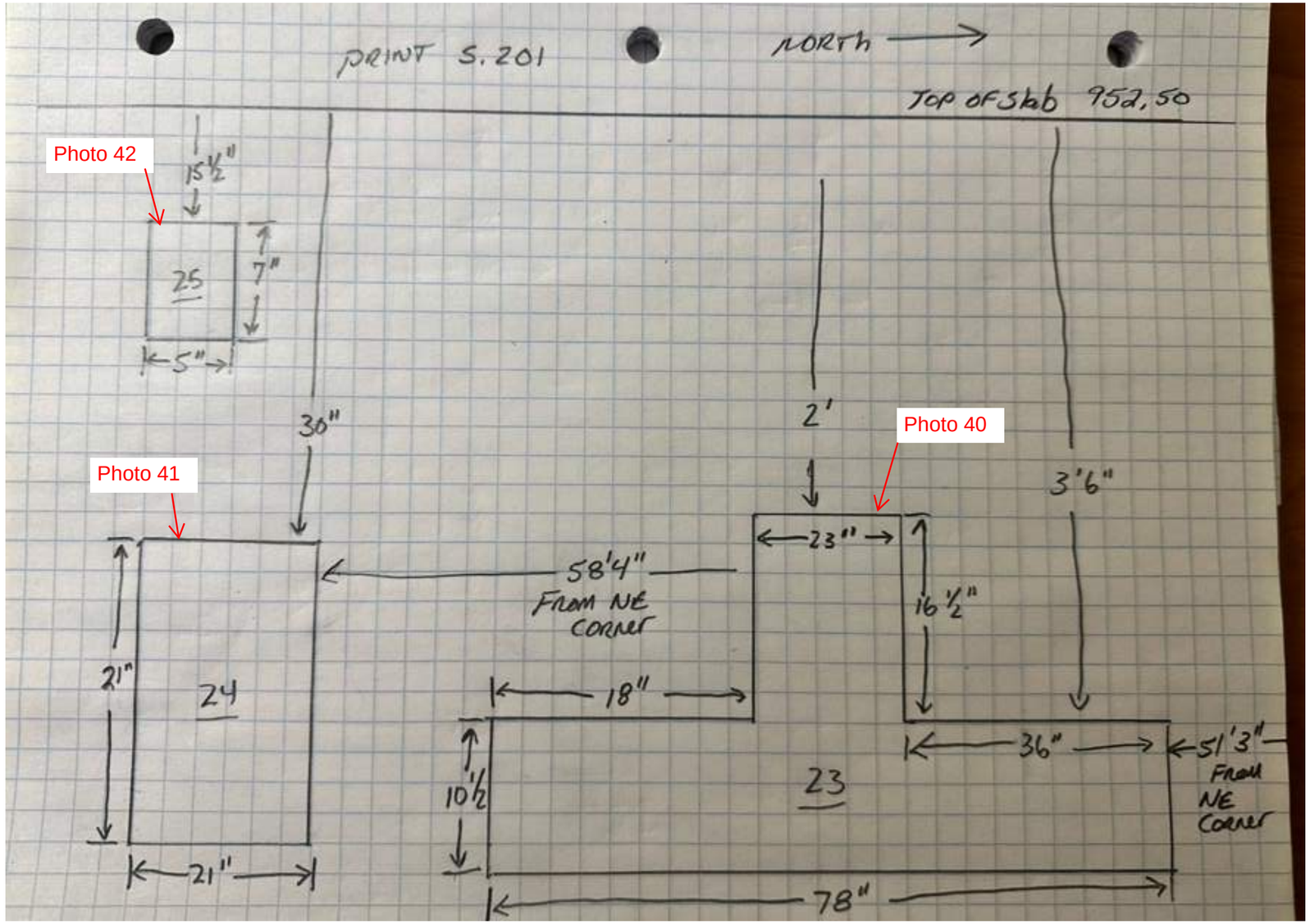


1 REVISION 1: REPAIRED EXISTING REPAIRS

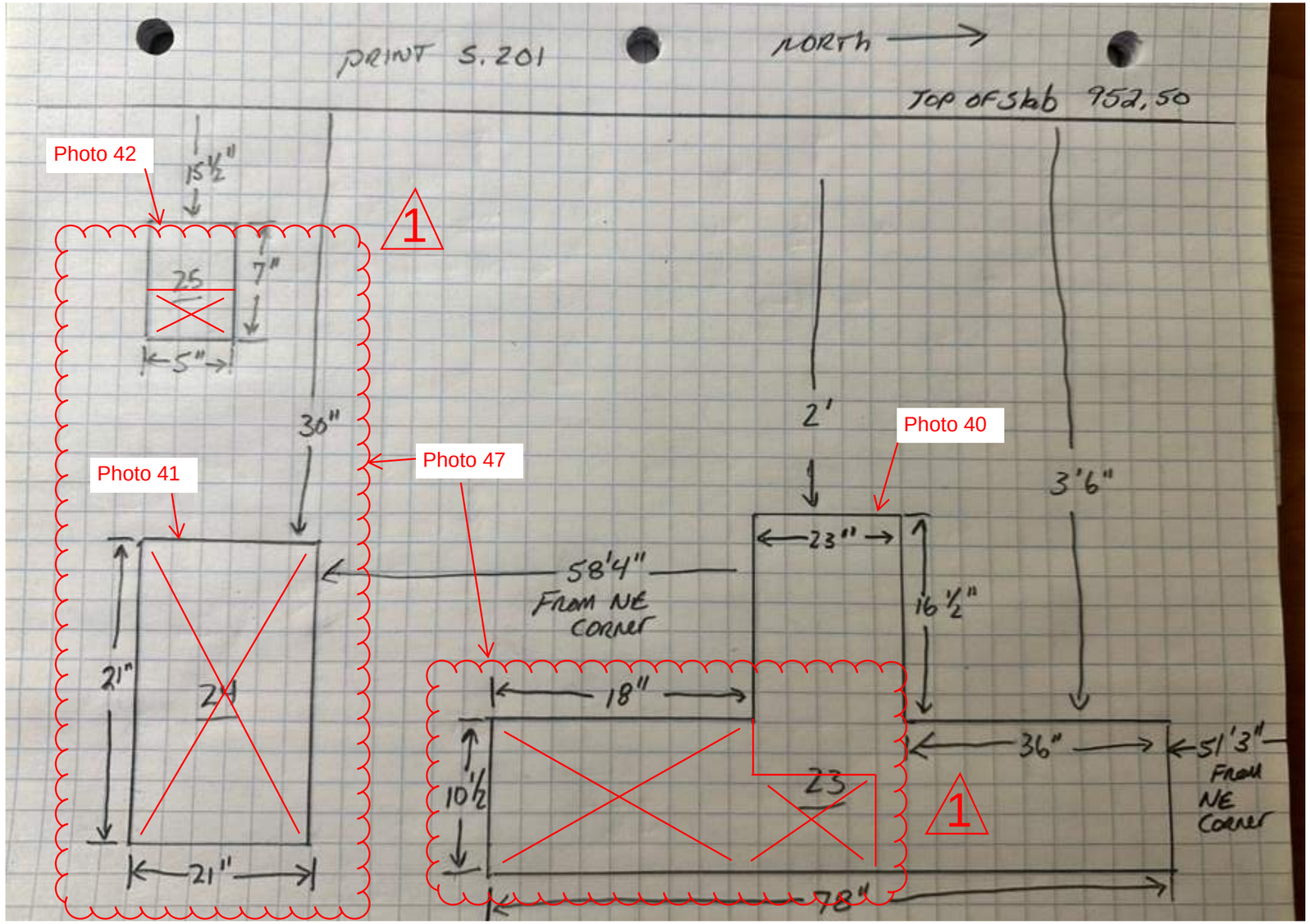
LEGEND:

╳ DENOTES REMOVAL


print S.201
22
20
19
18
Photo 39
Photo 37
Photo 38
21



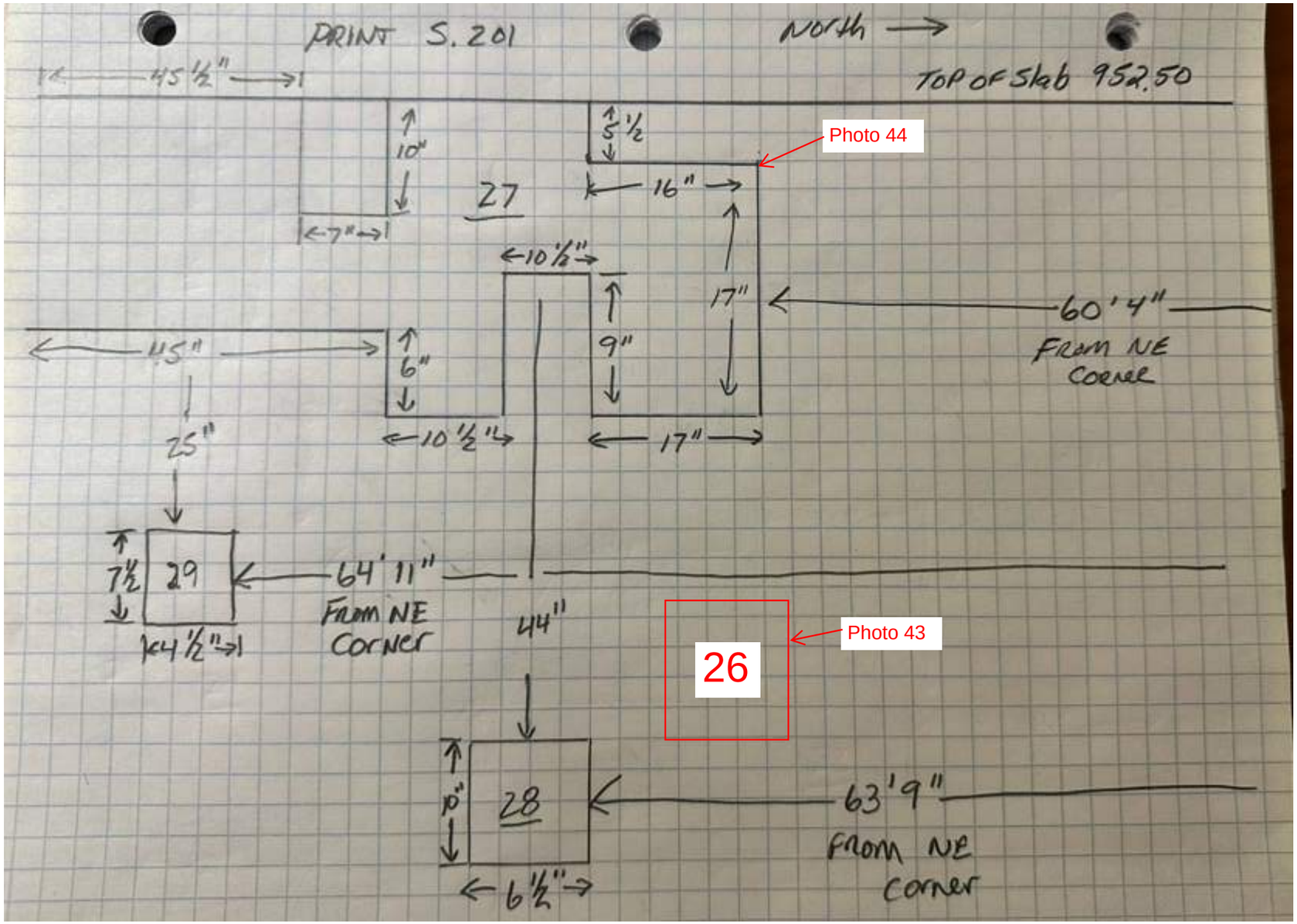
ORIGINAL REPAIRS



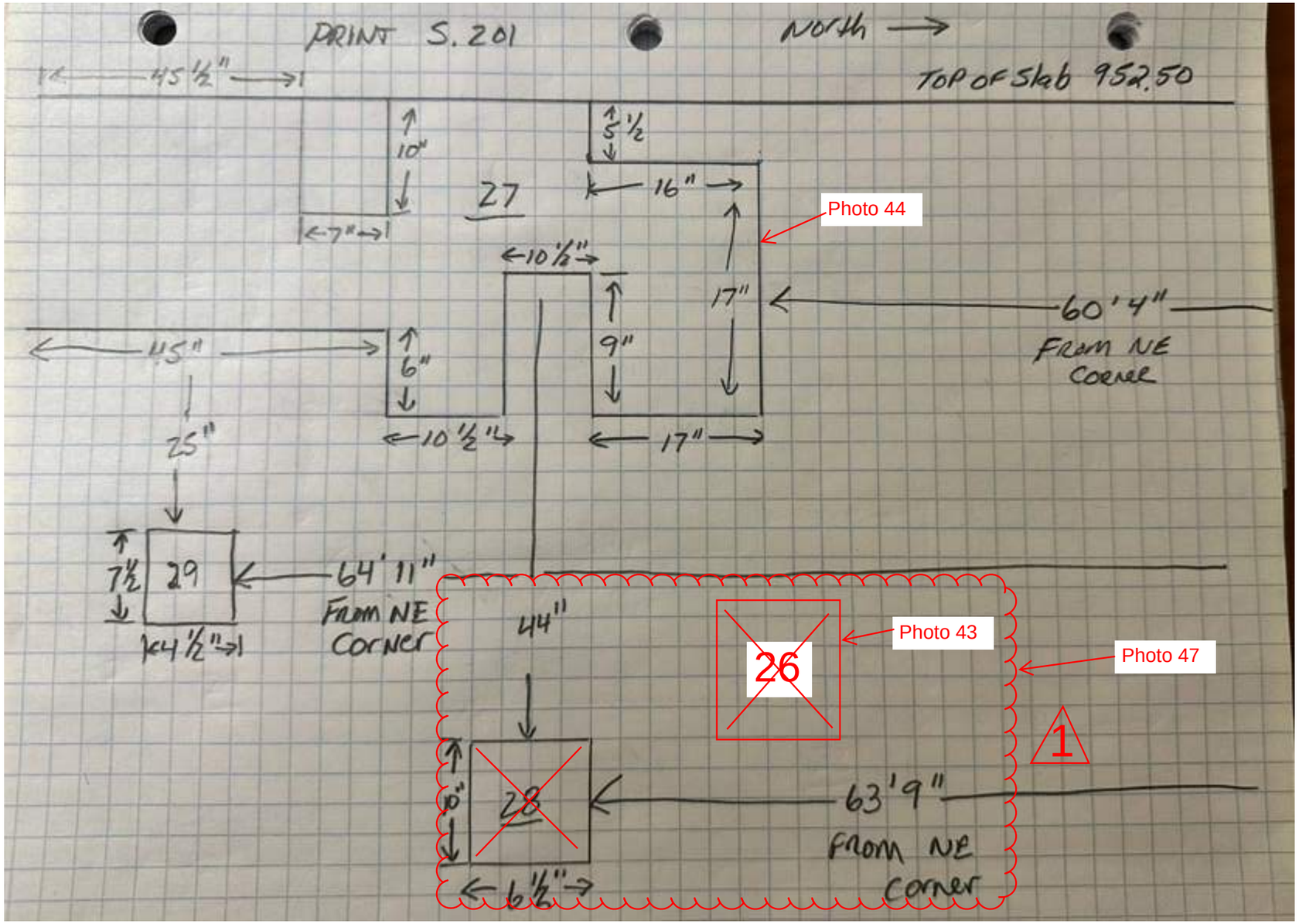
1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

╳ DENOTES REMOVAL


PRINT S.201
North →
TOP OF Slab 952.50
45 1/2"
10"
7"
27
5 1/2
16"
10 1/2"
17"
60'4"
FROM NE CORNER
9"
6"
45"
25"
10 1/2"
17"
7 1/2
29
64'11"
FROM NE CORNER
44"
Photo 44
Photo 43
26
28
10"
63'9"
FROM NE CORNER
6 1/2"

S2.04



1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

X DENOTES REMOVAL

Before Repair

After Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

Before Repair

Before Repair

Before Repair

Before Repair

PHOTO 6

After Repair

PHOTO 6

Before Repair

After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

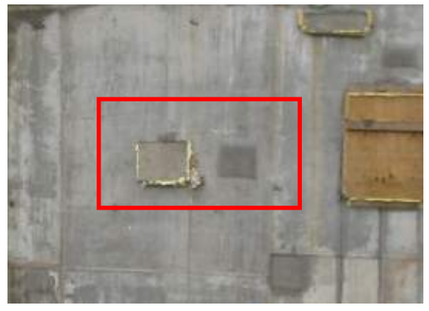
Before Repair

After Repair

PHOTO 9

Before Repair

Before Repair



After Repair

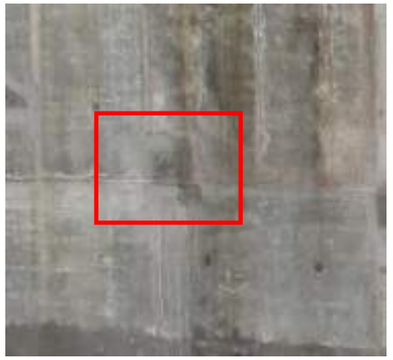
PHOTO 10

Before Repair

After Repair

PHOTO 11

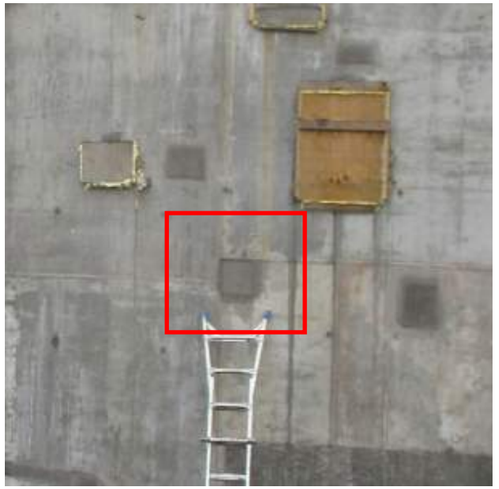
Before Repair



After Repair

PHOTO 12

Before Repair



After Repair

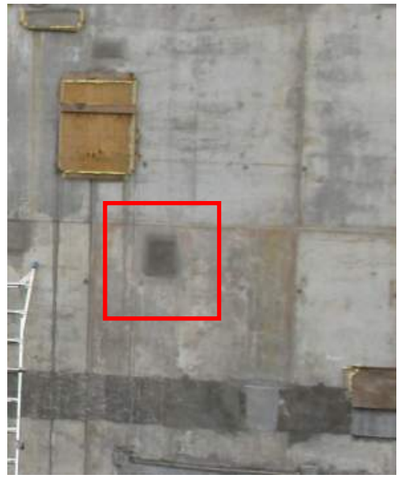
PHOTO 13

Before Repair

After Repair

PHOTO 14

Before Repair



After Repair

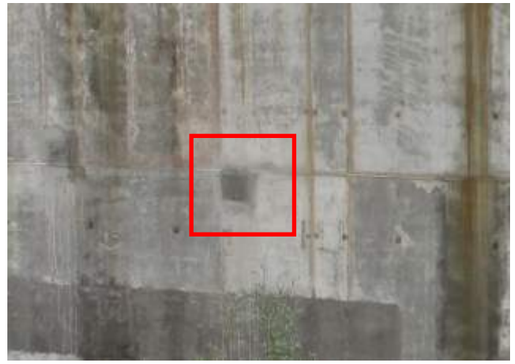
PHOTO 15

Before Repair

After Repair

PHOTO 16

Before Repair



After Repair

PHOTO 17

Before Repair

After Repair

PHOTO 18

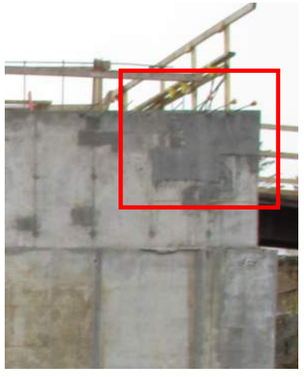
Before Repair

After Repair

PHOTO 19

Before Repair

Before Repair



After Repair

PHOTO 20

Before Repair

After Repair

PHOTO 21

Before Repair

After Repair

PHOTO 22

Before Repair

After Repair

PHOTO 23

Before Repair

After Repair

PHOTO 24

Before Repair

After Repair

Before Repair

After Repair

PHOTO 26

PHOTO 25

Before Repair

After Repair

PHOTO 27

Before Repair

After Repair

PHOTO 28

Before Repair

After Repair

PHOTO 29

Before Repair

After Repair

PHOTO 30

Before Repair

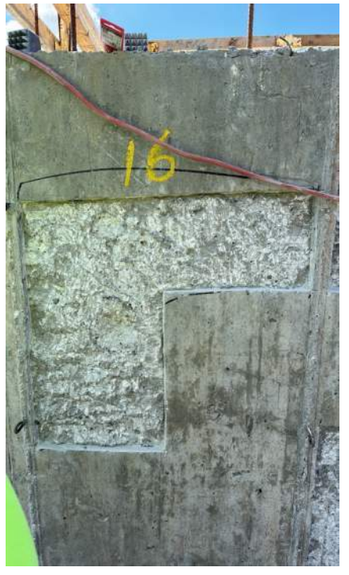
After Repair

PHOTO 31

Before Repair

After Repair

PHOTO 32



Before Repair

After Repair

PHOTO 33

Before Repair

Before Repair

Before Repair

Before Repair

After Repair

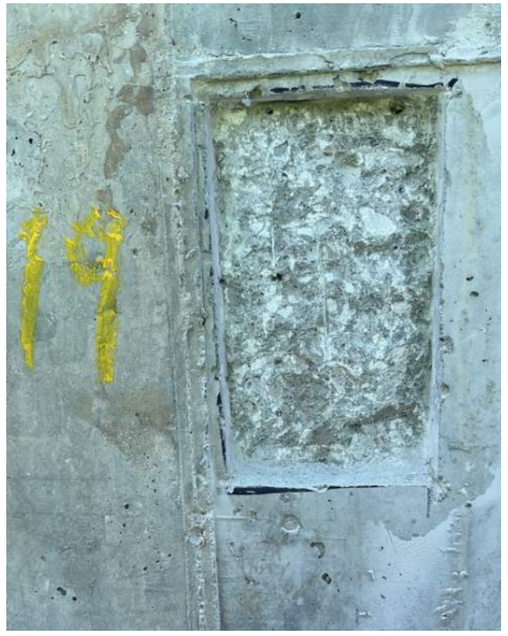
PHOTO 34

S2.04

Before Repair

After Repair

PHOTO 35



Before Repair

After Repair

PHOTO 36

Before Repair

After Repair

PHOTO 37

Before Repair

Before Repair

Before Repair

After Repair

PHOTO 38

Before Repair

After Repair

PHOTO 39

Before Repair

Before Repair

Before Repair

After Repair

PHOTO 40

Before Repair

After Repair

PHOTO 41

Before Repair

After Repair

PHOTO 42

Before Repair

After Repair

PHOTO 43

Before Repair

Before Repair

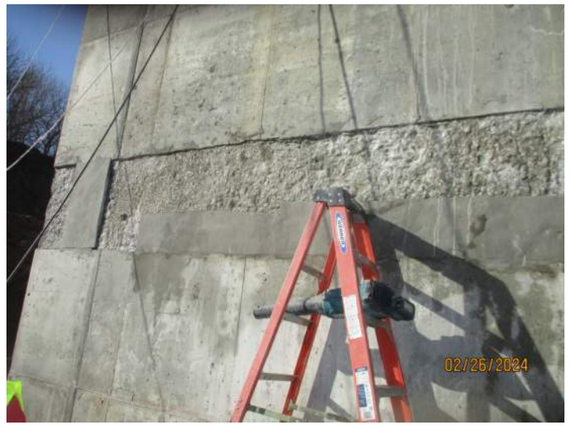
Before Repair

After Repair

PHOTO 44

Before Repair

Before Repair



Before Repair

After Repair

PHOTO 45

After Repair

After Repair

After Repair

PHOTO 45

1

Before Repair

After Repair

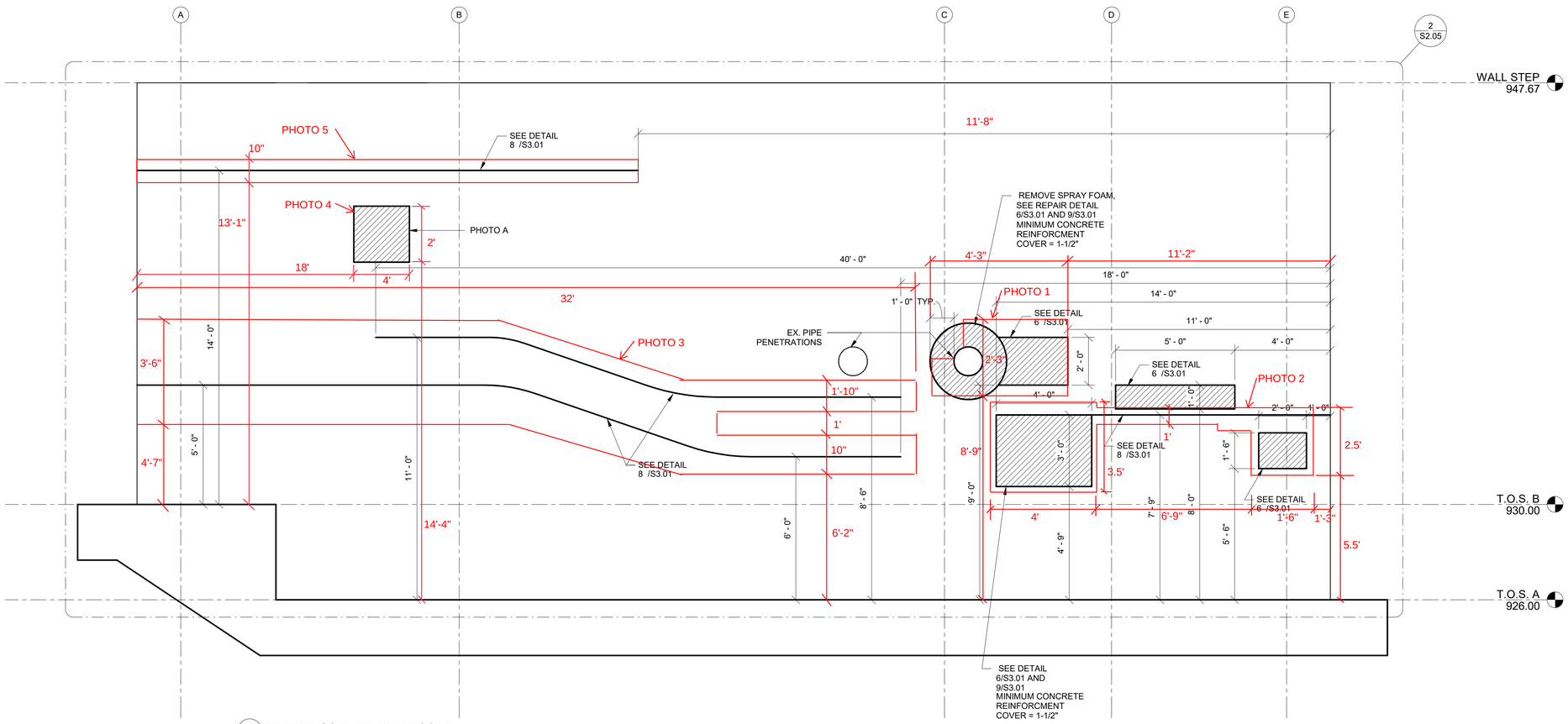
PHOTO 46

Before Repair

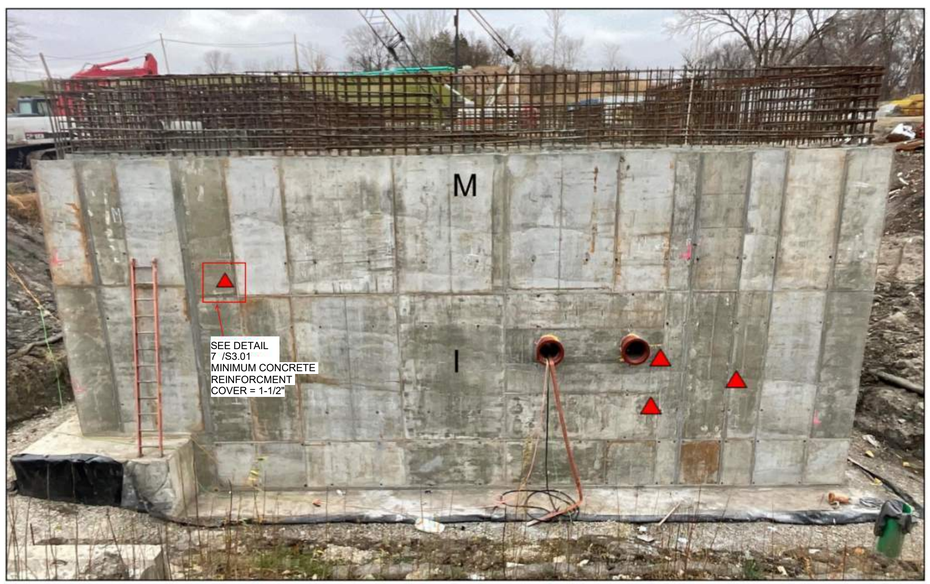
After Repair

PHOTO 47

1



1 EXTERIOR ELEVATION
3/8" = 1'-0"



2 PHOTO A

ORIGINAL REPAIRS

SHUCK BRITSON
400 E COURT AVE.
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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

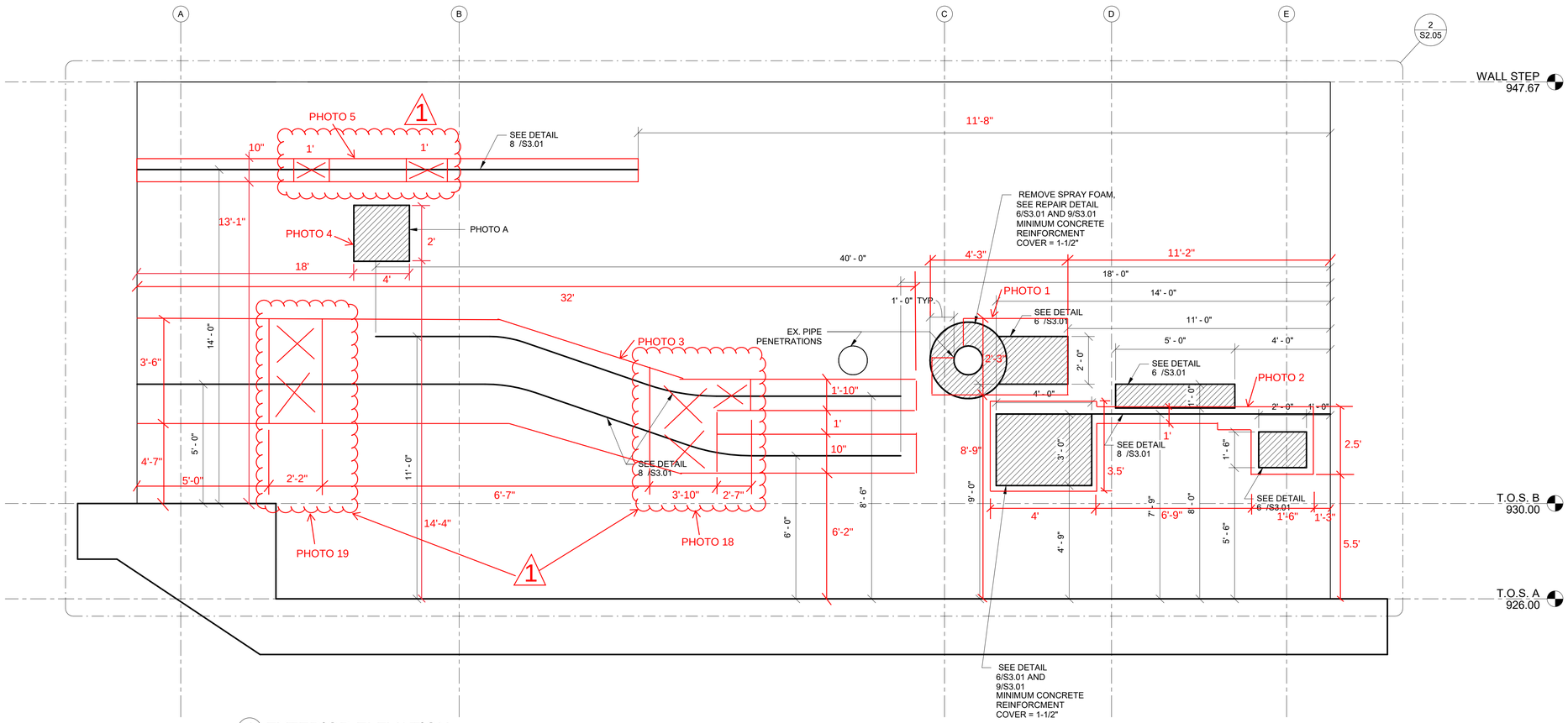
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

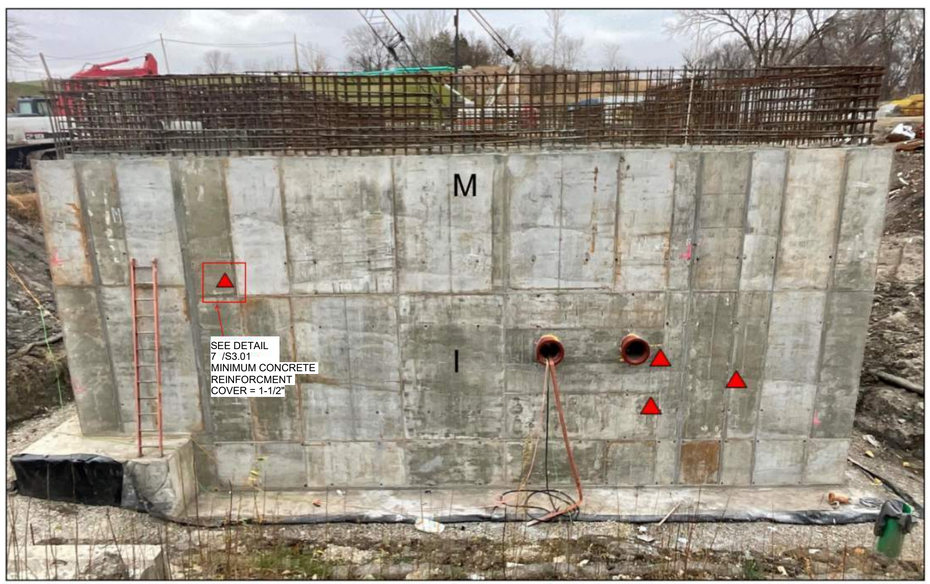
SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.05

3/24/2023 5:11:53 PM
C:\Users\chrisz\Documents\123.0172.03_STRUC_(R22)_chrisz45BDR.rvt



1 EXTERIOR ELEVATION
3/8" = 1'-0"



2 PHOTO A

1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

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BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

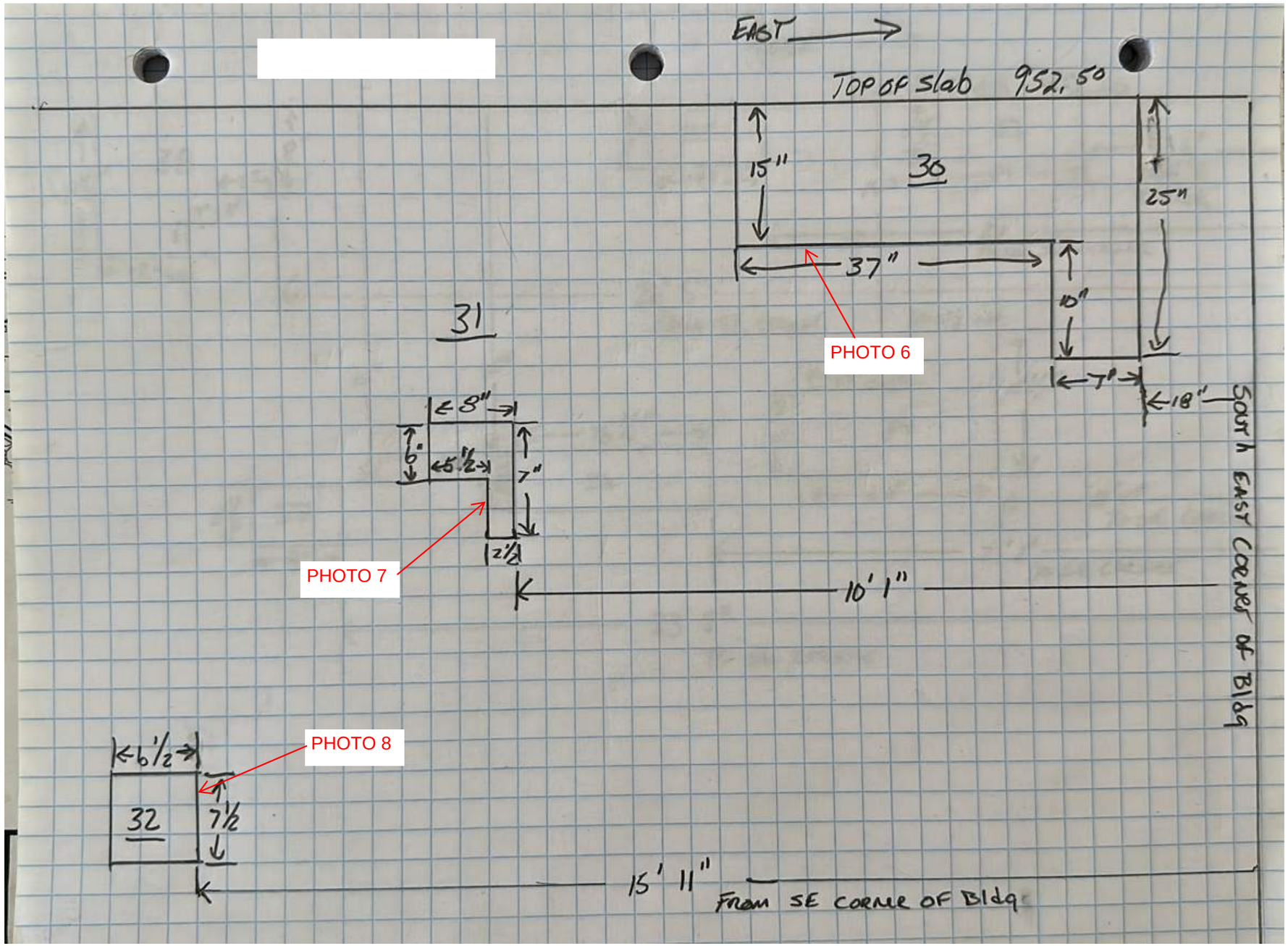
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

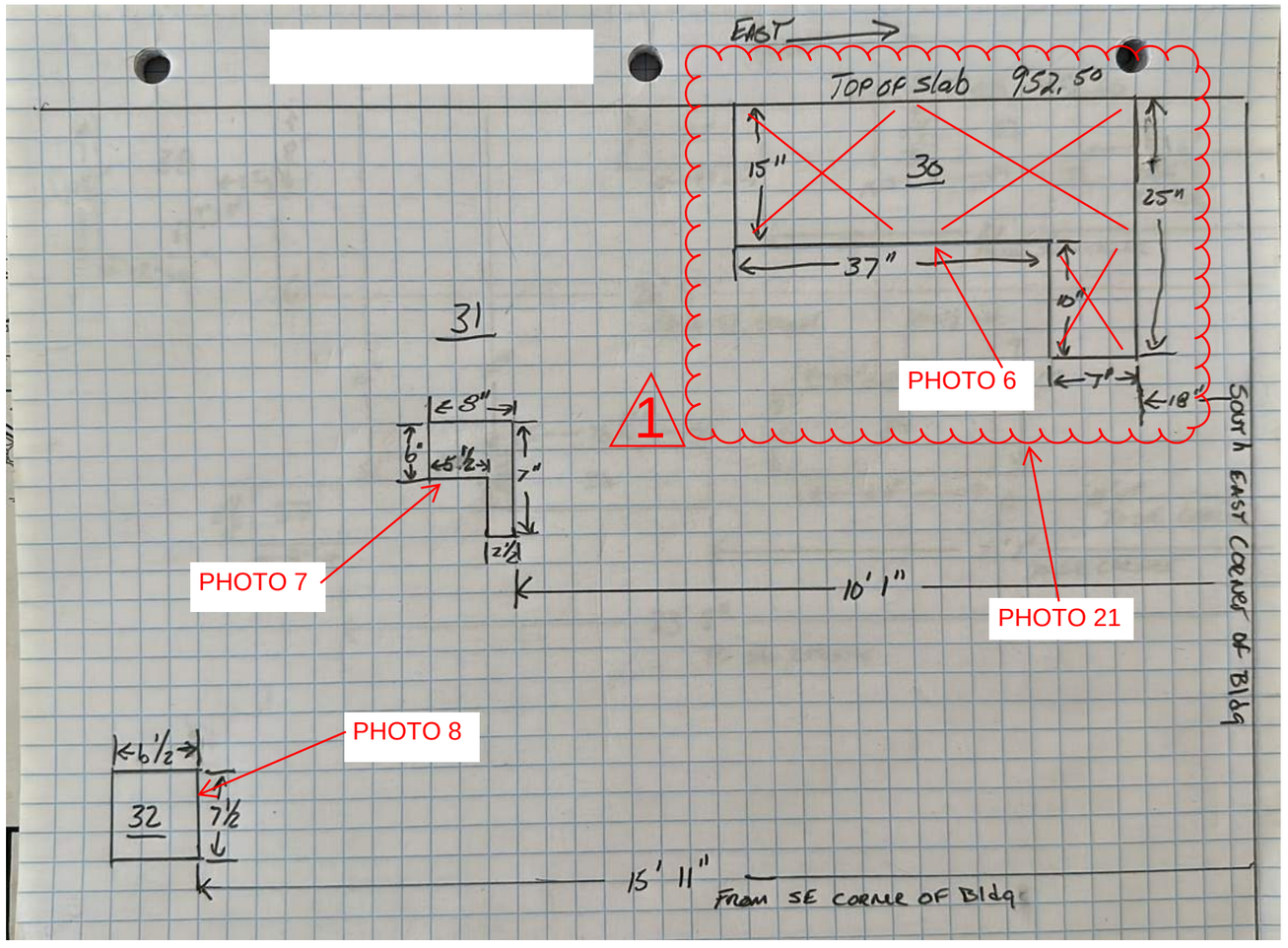
SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.05

3/24/2023 5:11:53 PM
C:\Users\chrisz\Documents\123.0172.03_STRUC_(R22)_chrisz45BDR.rvt



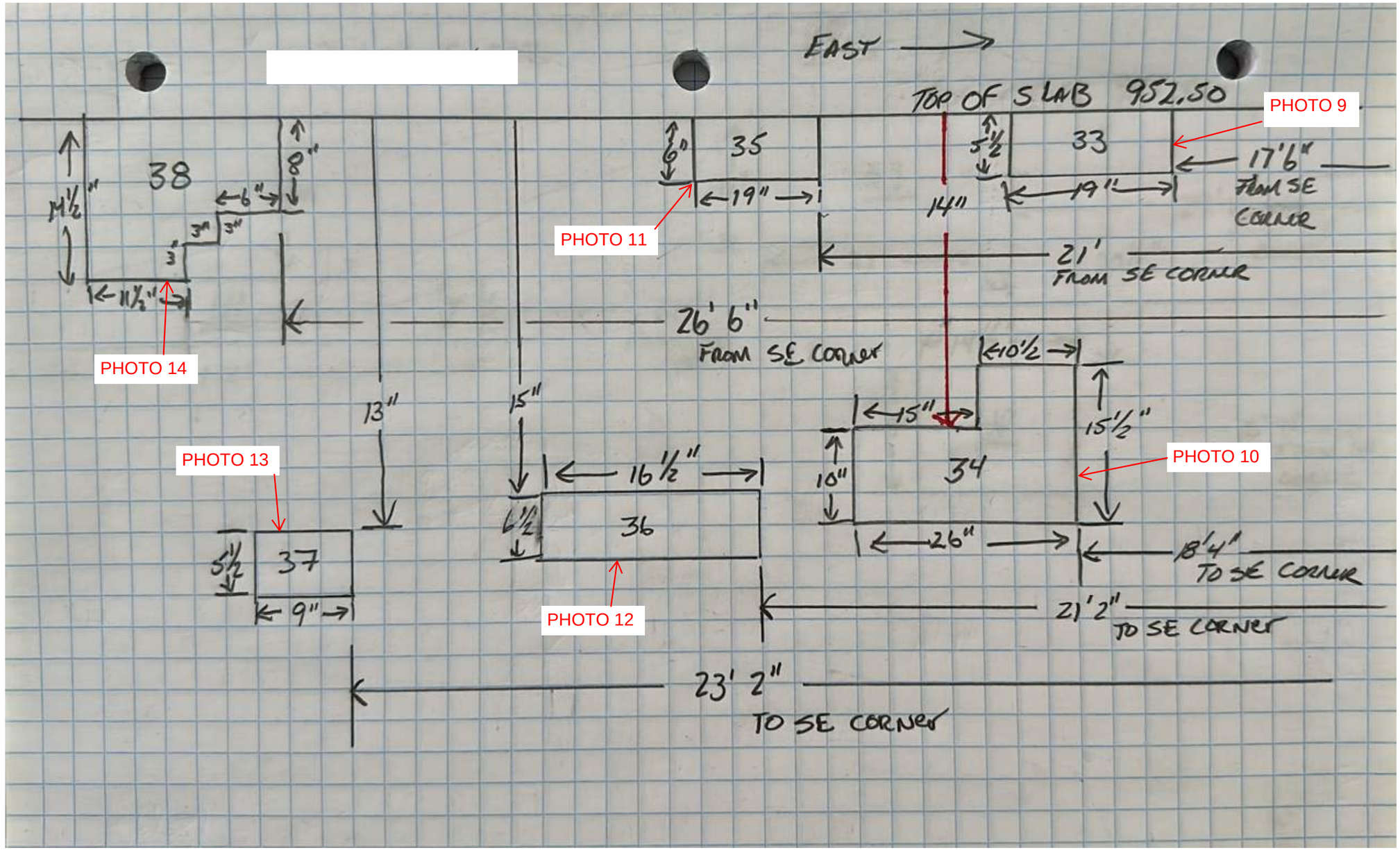
ORIGINAL REPAIRS



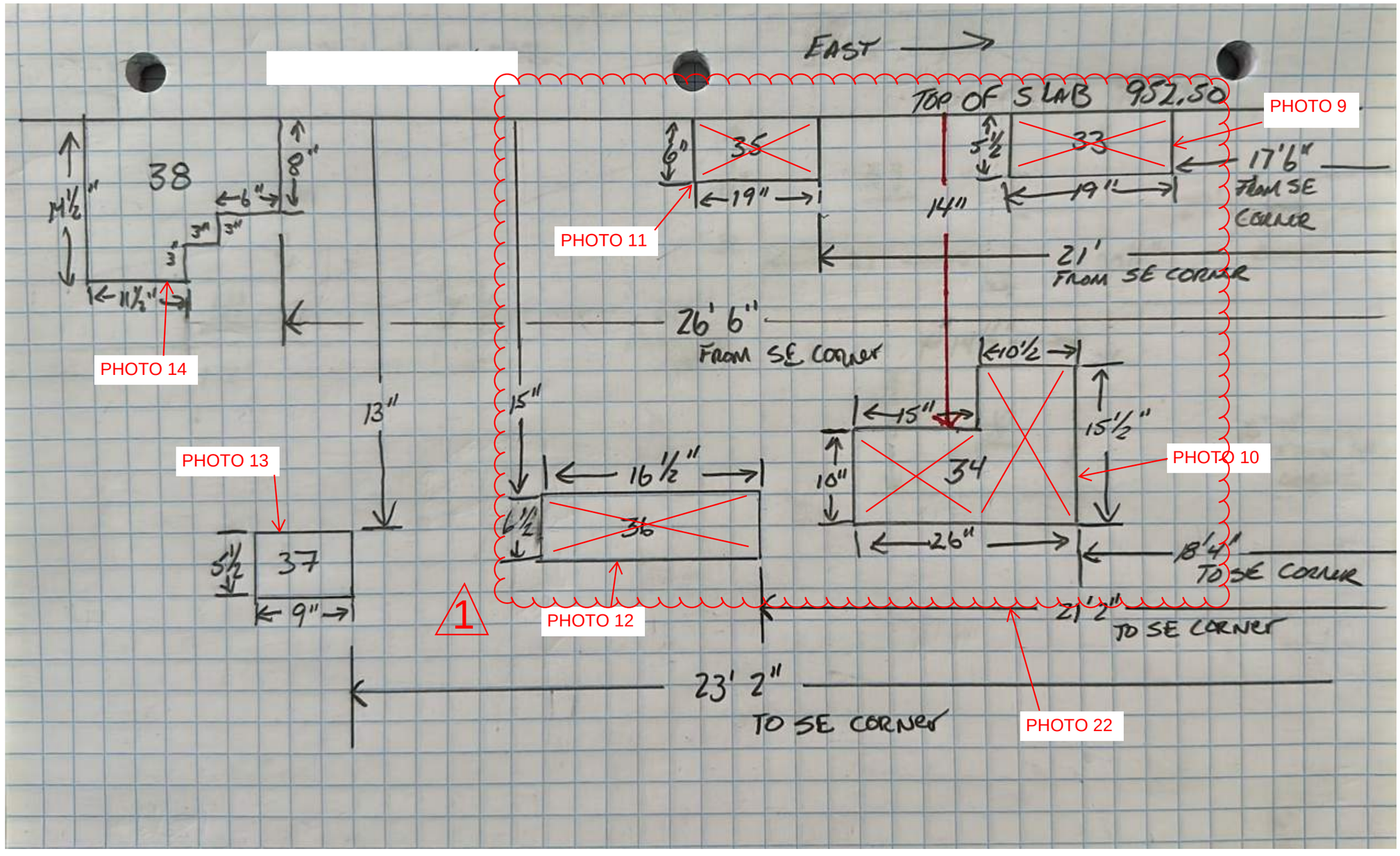
1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL



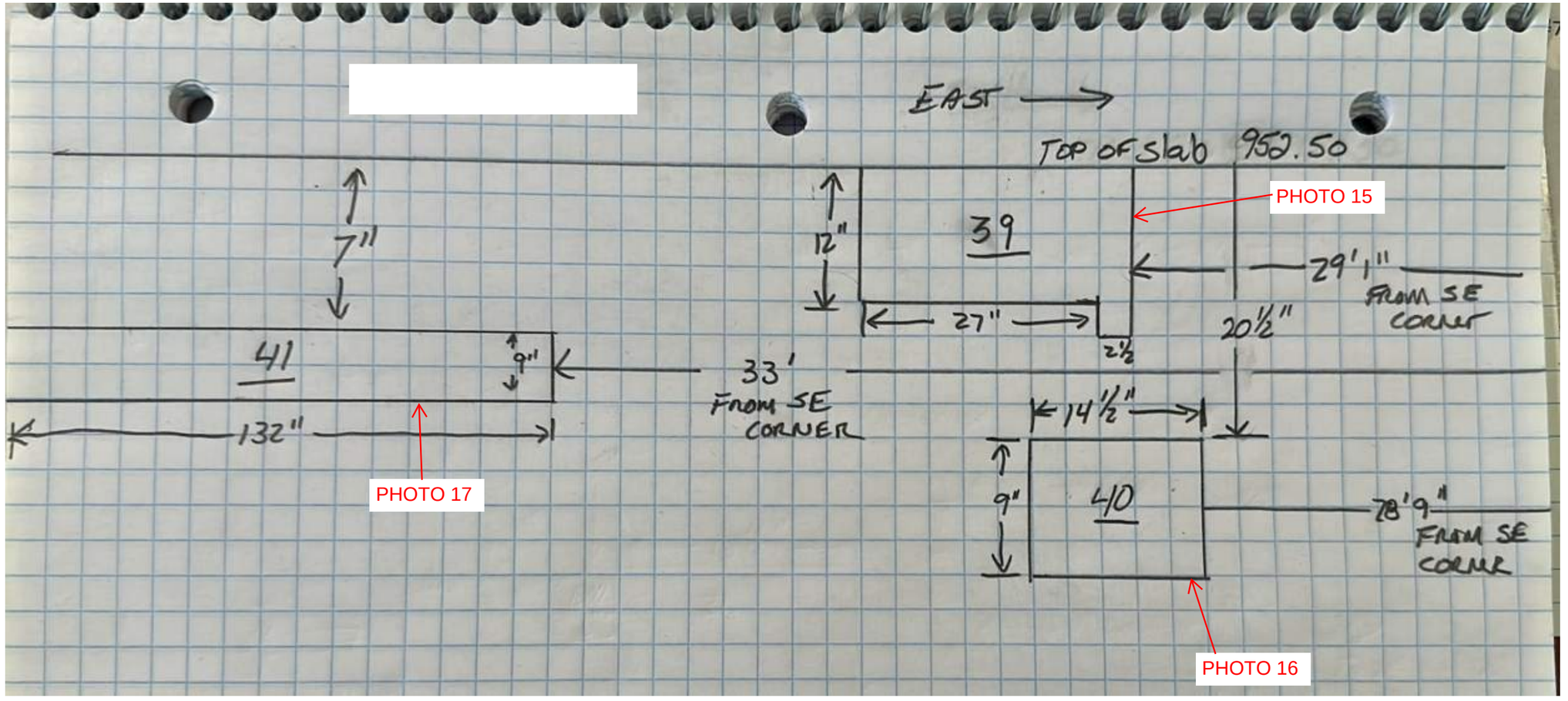
ORIGINAL REPAIRS



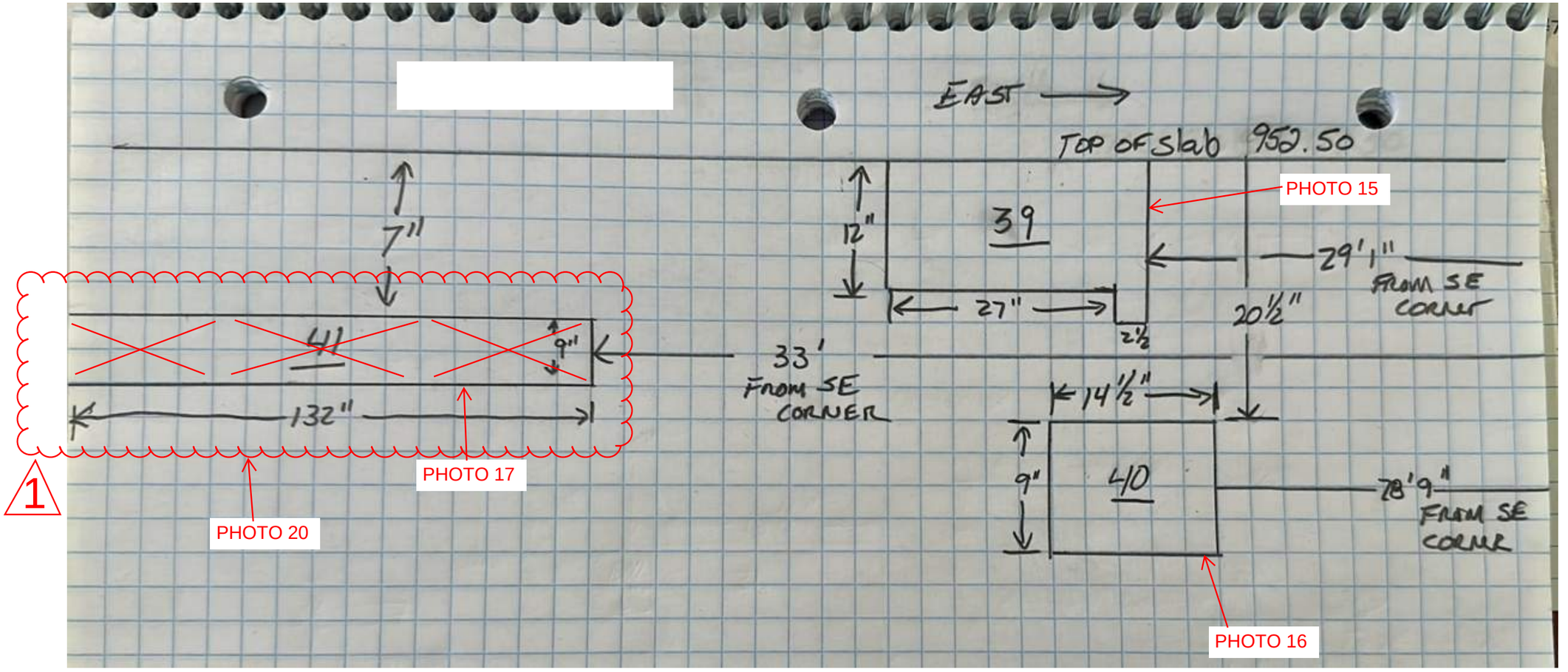
1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

╳ DENOTES REMOVAL



ORIGINAL REPAIRS



1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

╳ DENOTES REMOVAL

S2.05

Before Repair

Before Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

S2.05

Before Repair

After Repair

After Repair

PHOTO 5

Before Repair

After Repair

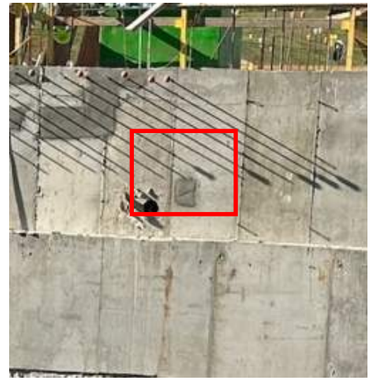
PHOTO 6

Before Repair

After Repair

PHOTO 7

Before Repair



After Repair

PHOTO 8

Before Repair

After Repair

PHOTO 9

Before Repair

After Repair

PHOTO 10

Before Repair

After Repair

PHOTO 11

Before Repair

After Repair

PHOTO 12

Before Repair

After Repair

PHOTO 13

Before Repair

After Repair

PHOTO 14

Before Repair

After Repair

PHOTO 15

Before Repair

After Repair

PHOTO 16

Before Repair

Before Repair

After Repair

PHOTO 17

Before Repair

After Repair

PHOTO 18

Before Repair

After Repair

PHOTO 20

Before Repair

After Repair

PHOTO 19

Before Repair

After Repair

PHOTO 21

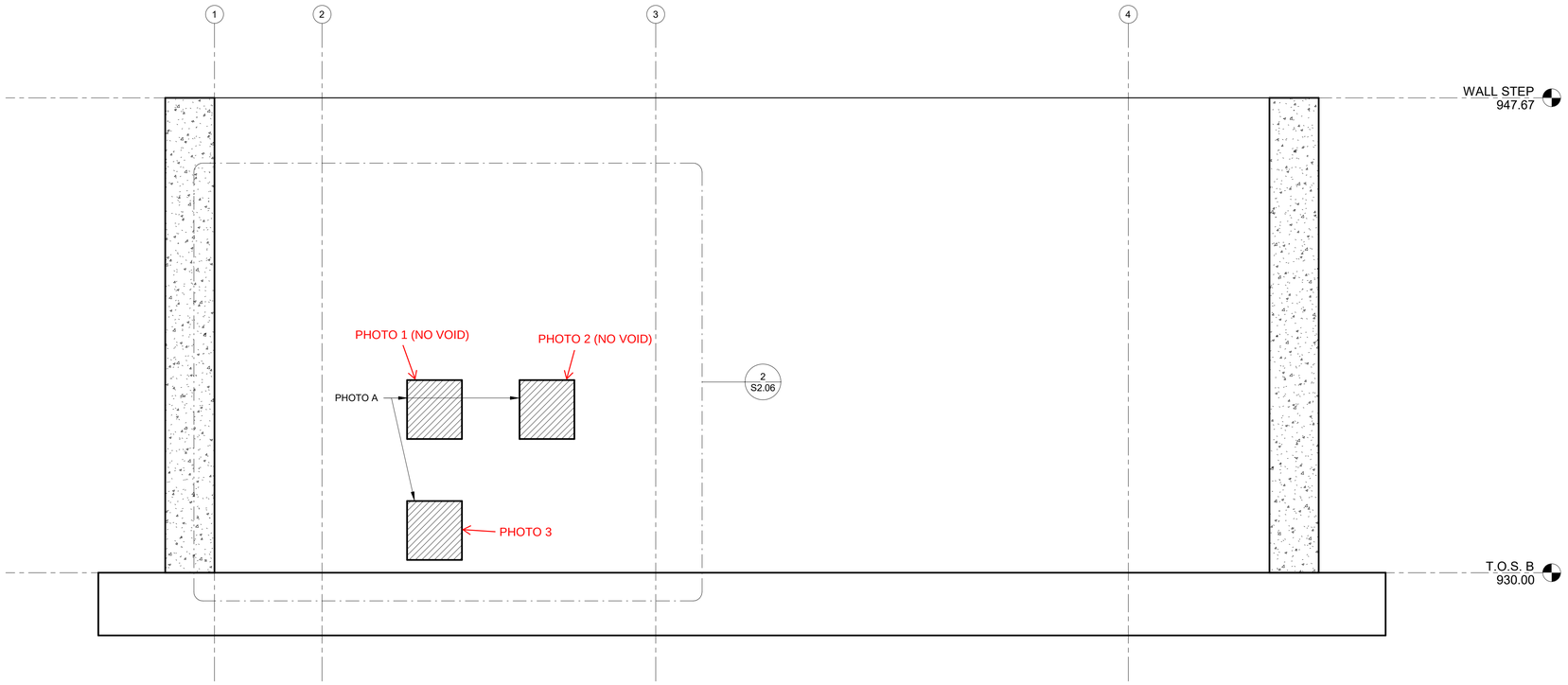
Before Repair

After Repair

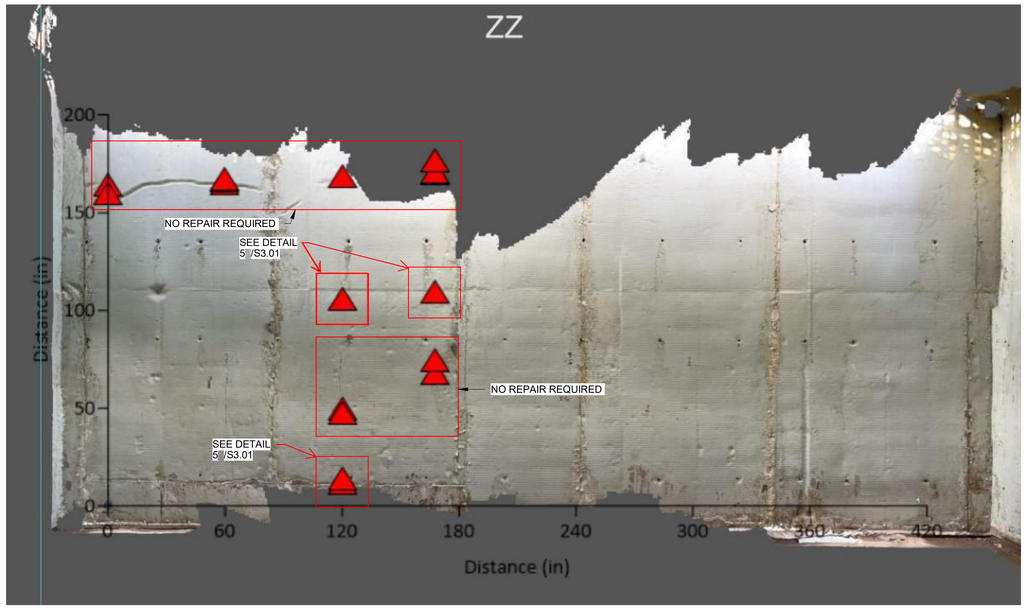
PHOTO 22

1

S2.05



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



2 PHOTO A
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.06

3/24/2023 5:11:53 PM
C:\Users\chrisar\Documents\123.0172.03_STRUC_(R22)_chrisar65BDR.rvt

Before Repair

After Repair

PHOTO 1

Before Repair

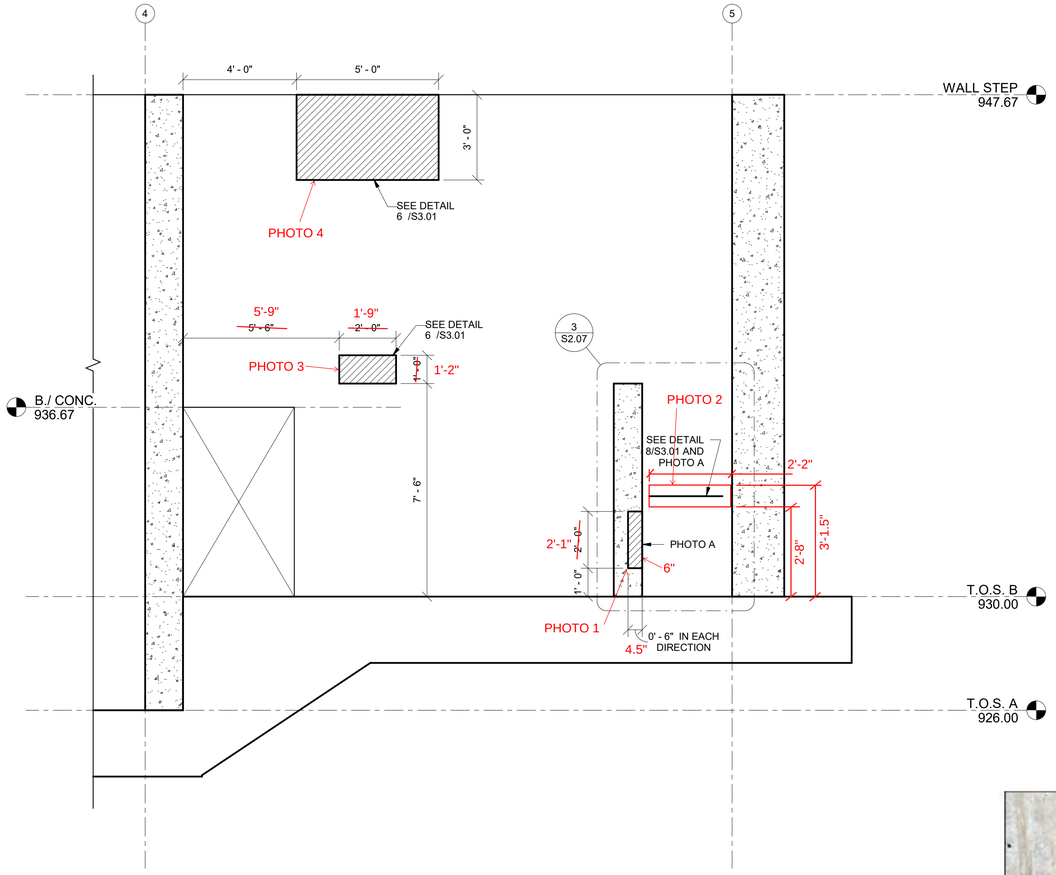
After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3



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

2 PHOTO A

3 PHOTO B

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CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.07

3/24/2023 5:11:54 PM
C:\Users\dmoe\Documents\123.0172.03_STRUC_(R23)_dmoe#SBDR.rvt

Before Repair

After Repair

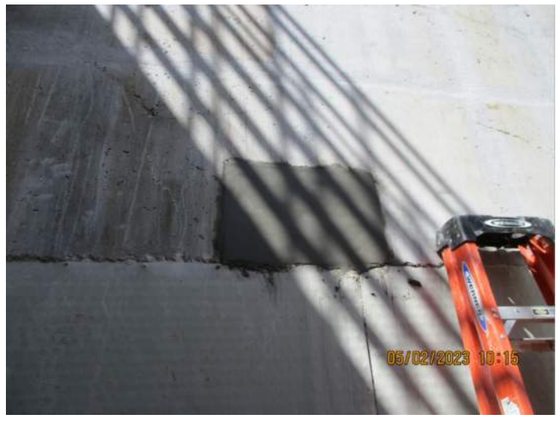
PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair



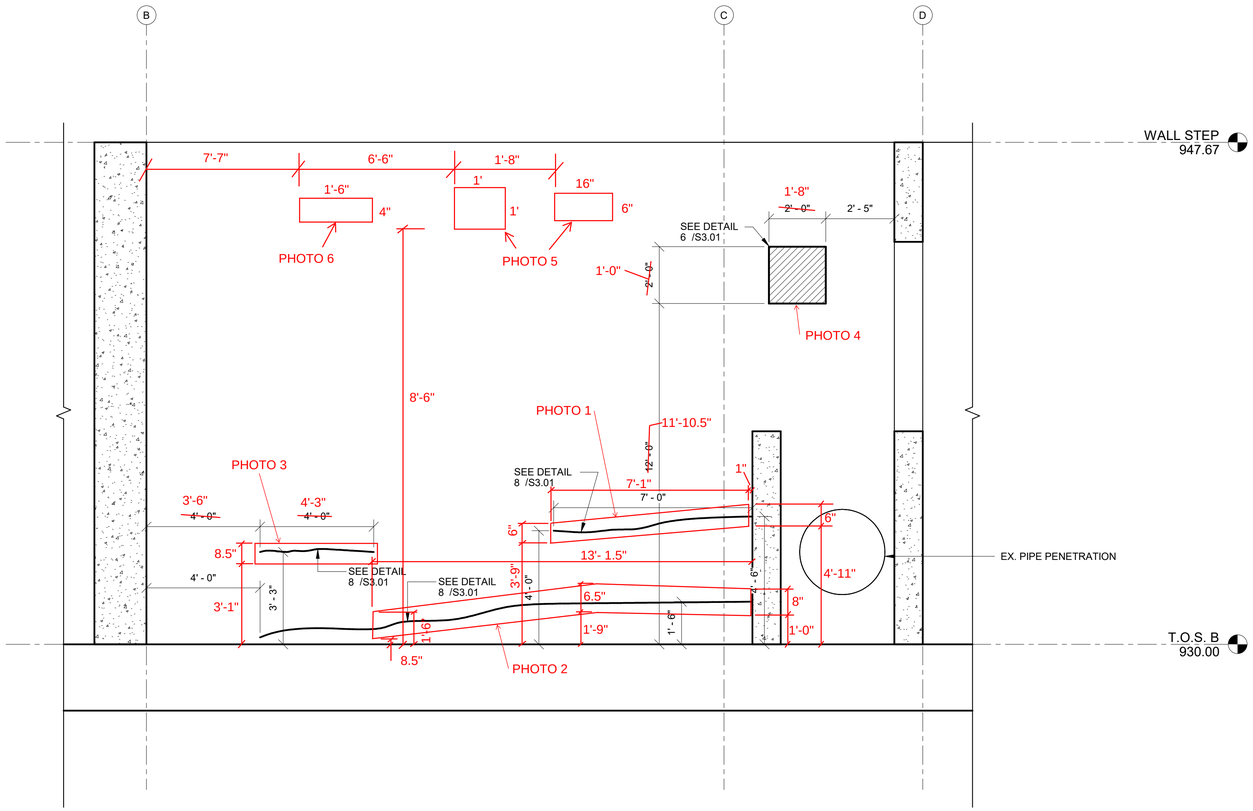
After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4



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

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457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.08

Before Repair

Before Repair

Before Repair

After Repair

After Repair

PHOTO 1

Before Repair

Before Repair

Before Repair

Before Repair

Before Repair

PHOTO 2

S2.08

After Repair

After Repair

After Repair

After Repair

PHOTO 2

Before Repair

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

Before Repair

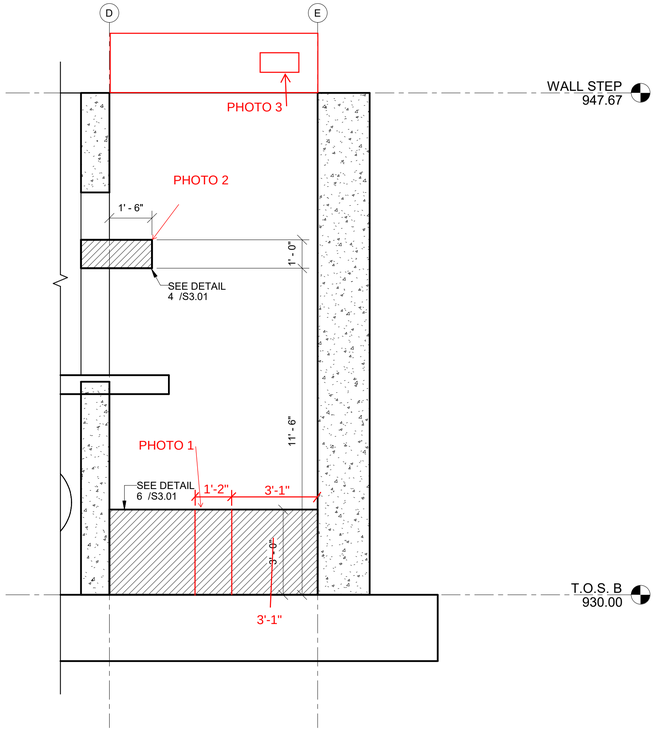
After Repair

PHOTO 5

Before Repair

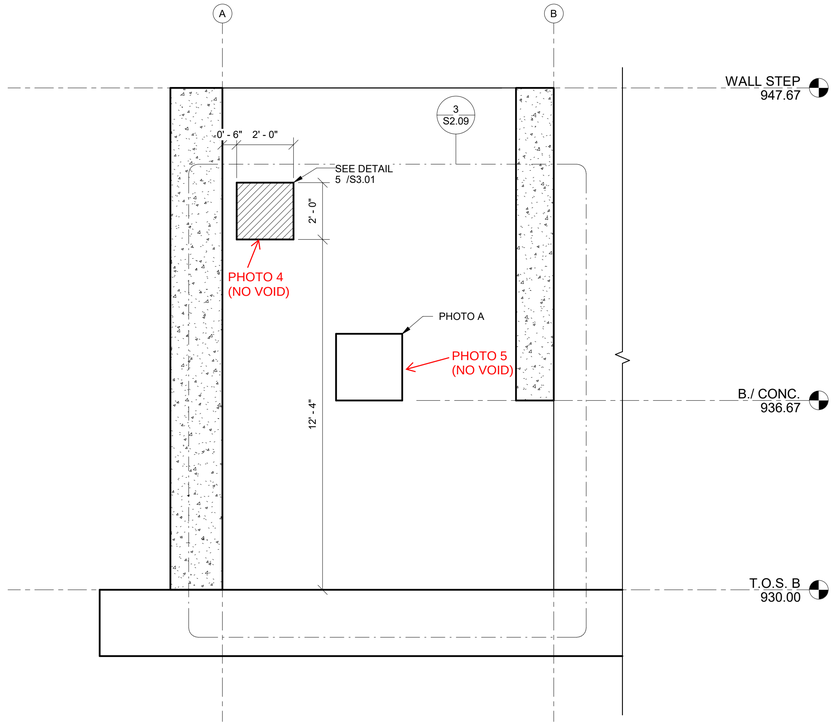
After Repair

PHOTO 6



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

3 PHOTO A
3/8" = 1'-0"



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.09

3/24/2023 5:11:54 PM
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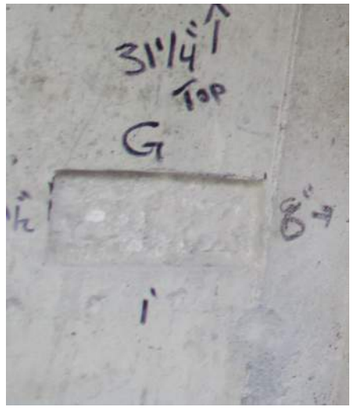
Before Repair

After Repair

PHOTO 1



Before Repair

After Repair

PHOTO 3

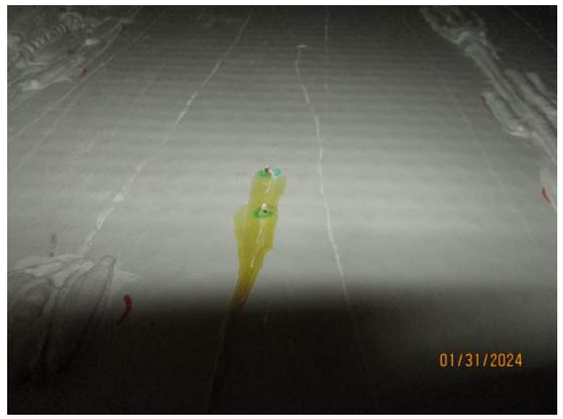
Before Repair

Before Repair

After Repair

PHOTO 2

Before Repair



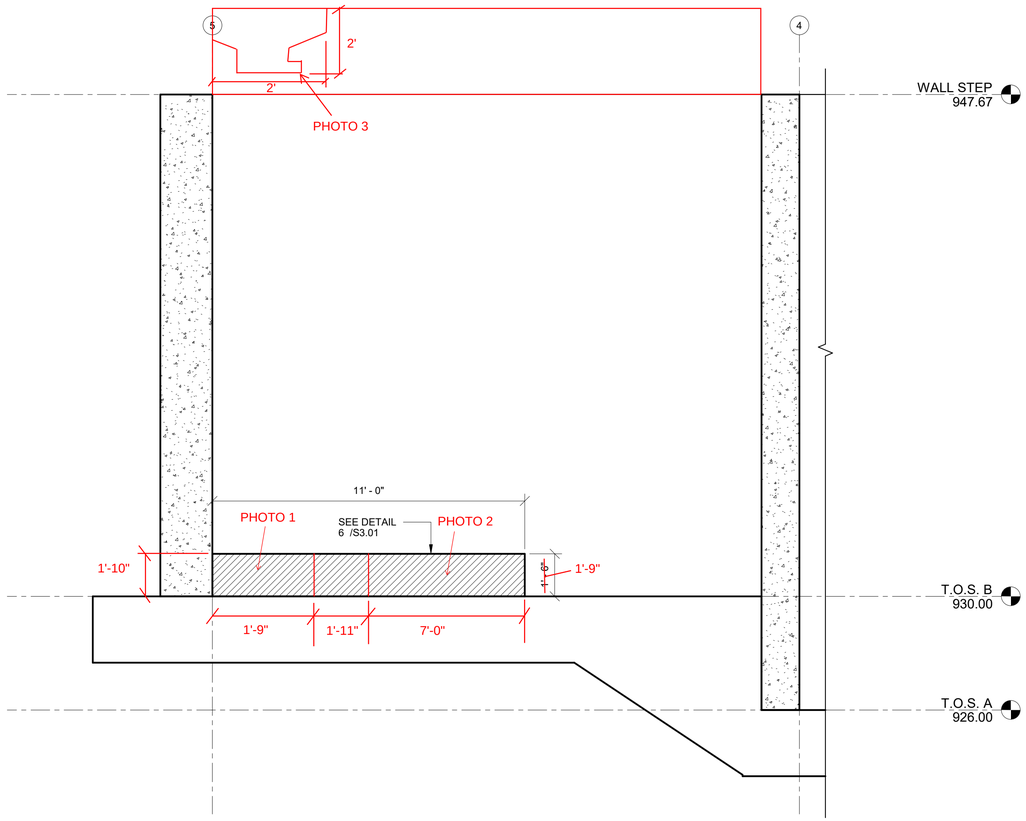
After Repair

PHOTO 4

Before Repair

After Repair

PHOTO 5



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

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.10

3/24/2023 5:11:54 PM
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Before Repair

After Repair

PHOTO 1

Before Repair

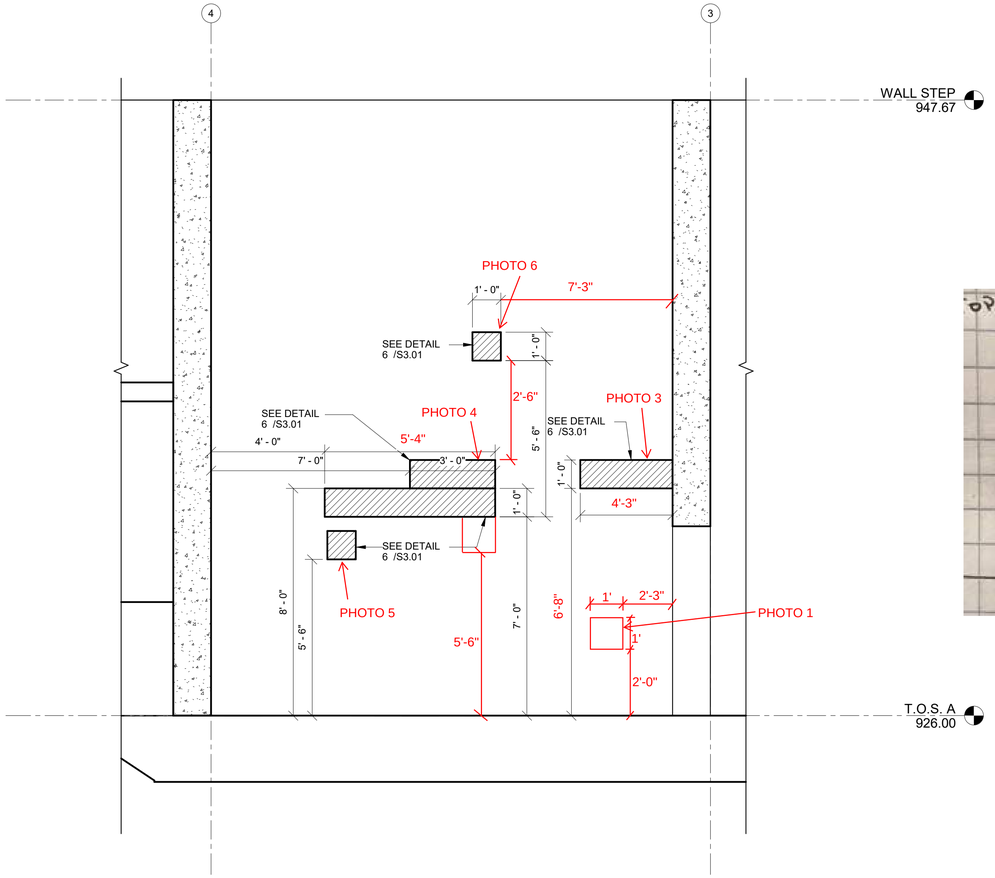
After Repair

PHOTO 2

Before Repair

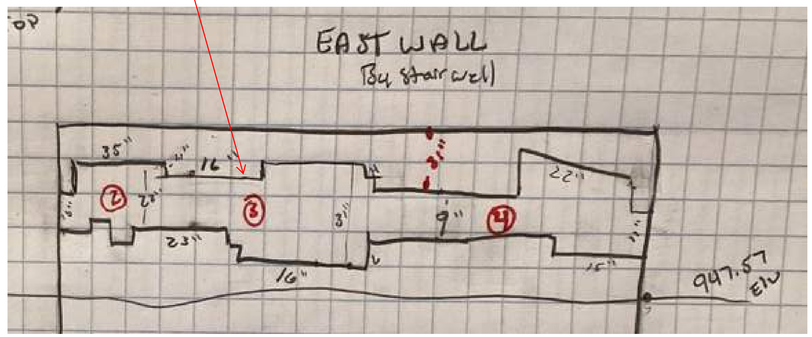
After Repair

PHOTO 3



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

PHOTO 2



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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.11

3/24/2023 5:11:55 PM
C:\Users\chinze\Documents\123.0172.03_STRUC_(R23)_chinzeHEBER.rvt

Before Repair

After Repair

PHOTO 1

Before Repair

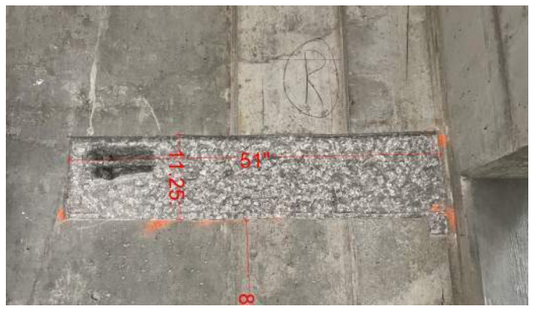
Before Repair

Before Repair

After Repair

PHOTO 2

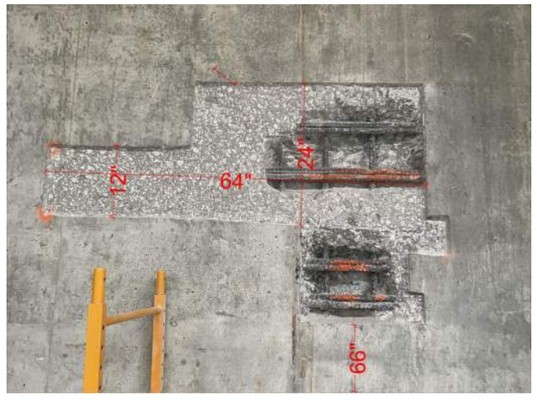
S2.11



Before Repair

After Repair

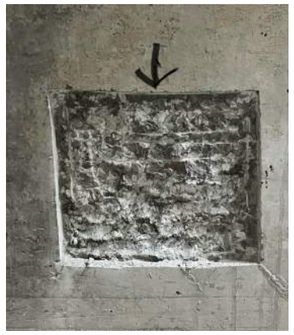
PHOTO 3



Before Repair

After Repair

PHOTO 4



Before Repair

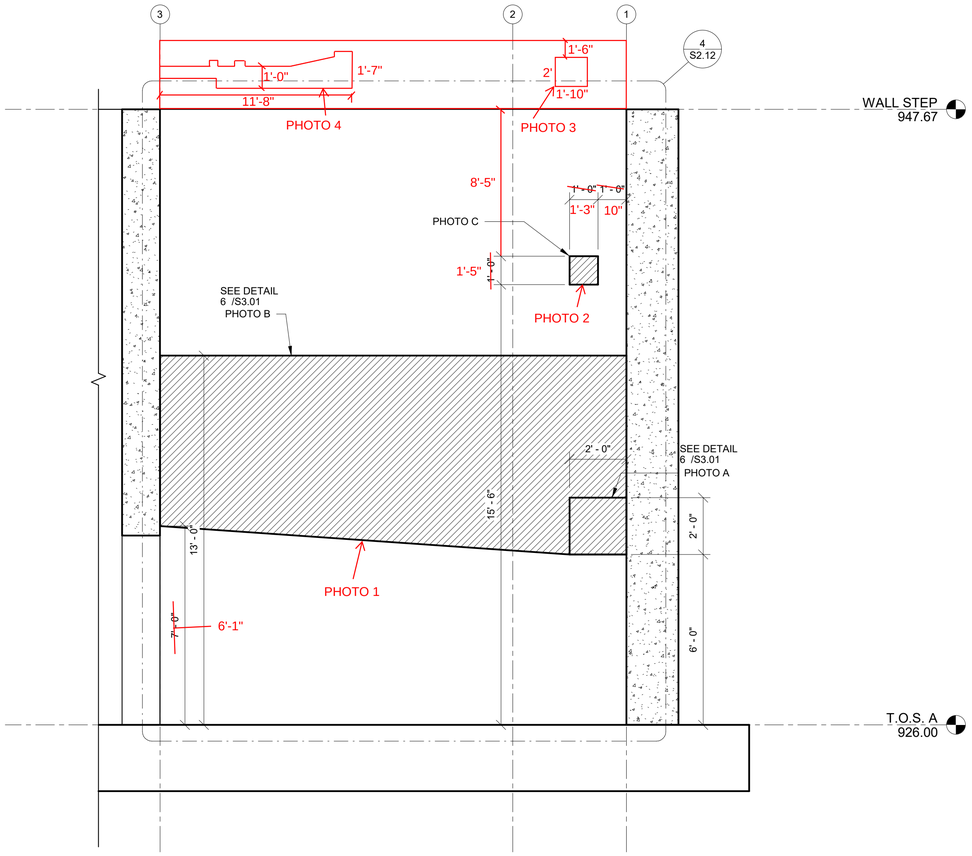
After Repair

PHOTO 6

Before Repair

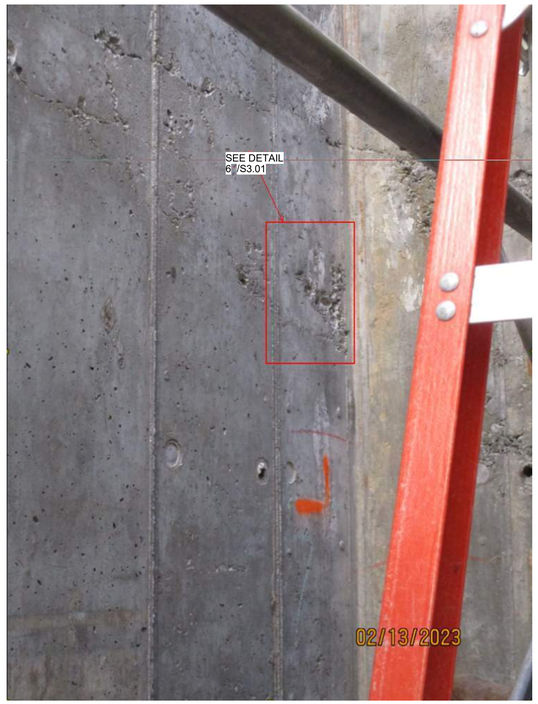
After Repair

PHOTO 5



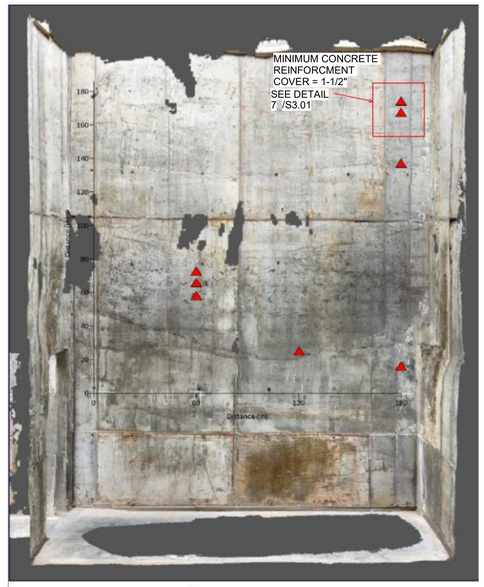
1 INTERIOR ELEVATION
3/8" = 1'-0"

ORIGINAL REPAIRS



2 PHOTO A

3 PHOTO B



4 PHOTO C
1" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.12

3/24/2023 5:11:55 PM
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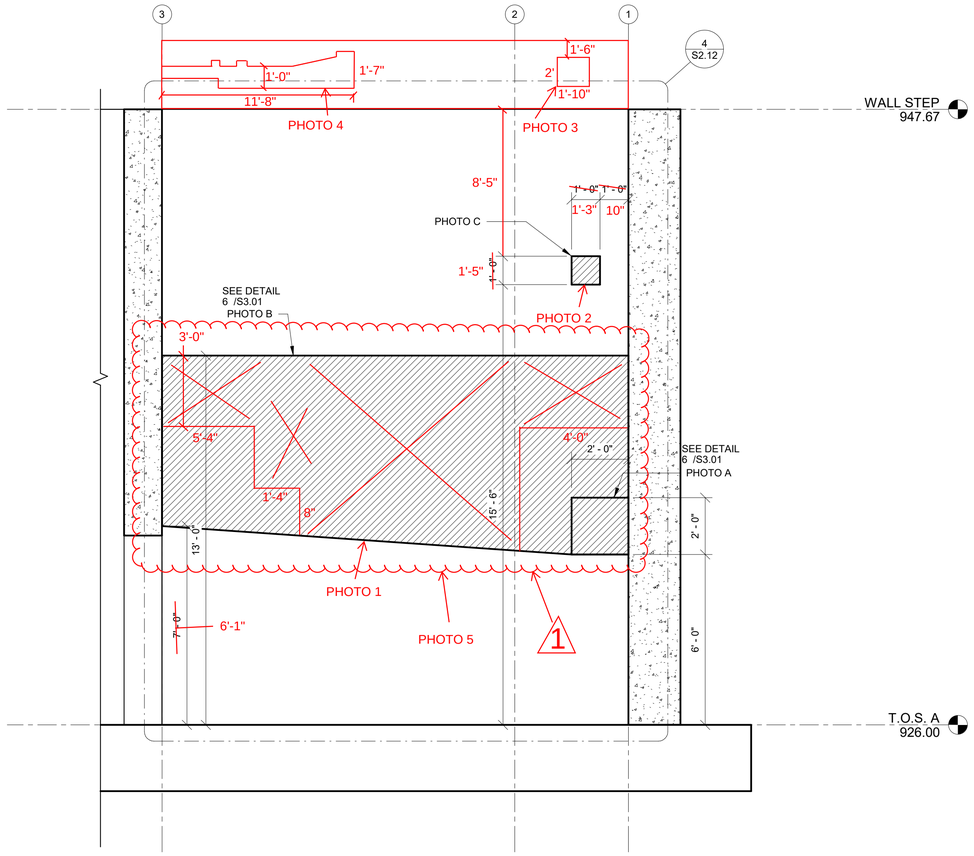
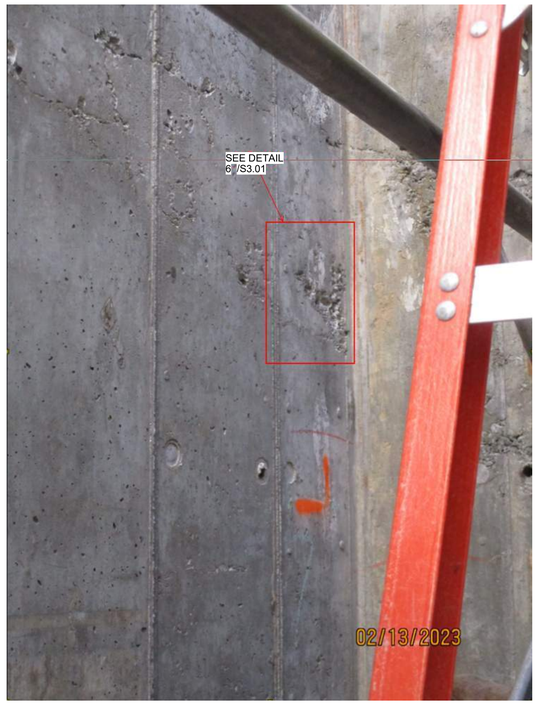
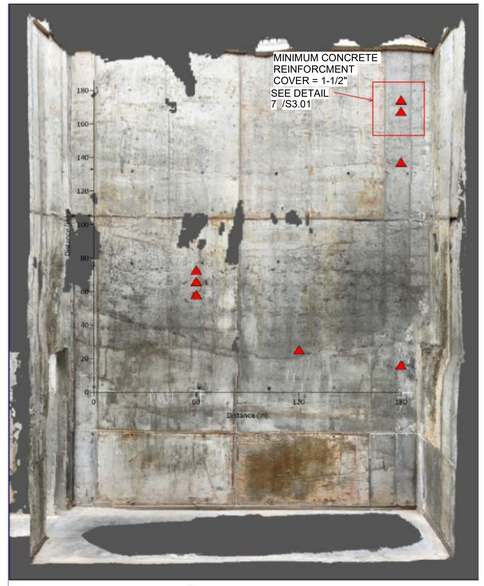


1 INTERIOR ELEVATION
3/8" = 1'-0"



2 PHOTO A



4 PHOTO C
1" = 1'-0"

1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

3 PHOTO B

SHUCK BRITSON
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515-243-4477
www.shuck-britson.com

NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

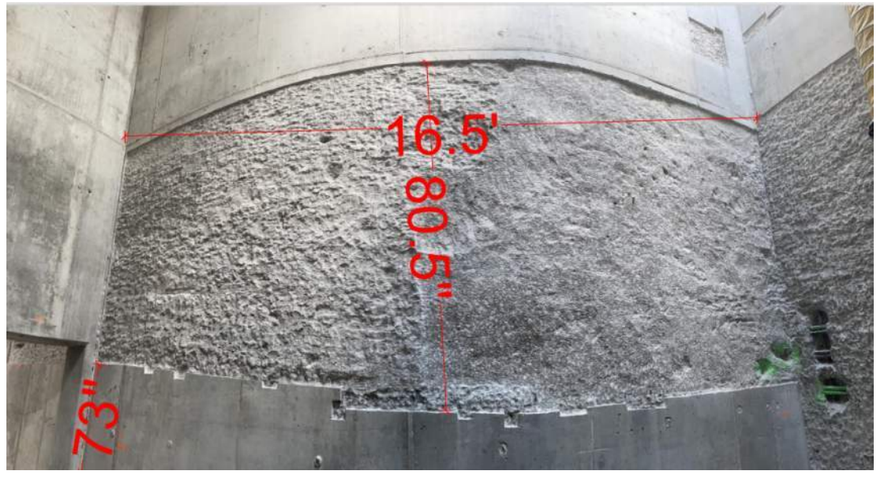
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.12

3/24/2023 5:11:55 PM
C:\Users\chirvat\Documents\123.0172.03_STRUC_R22_chirvatHEBDR.rvt



Before Repair

Before Repair

After Repair

PHOTO 1

Before Repair

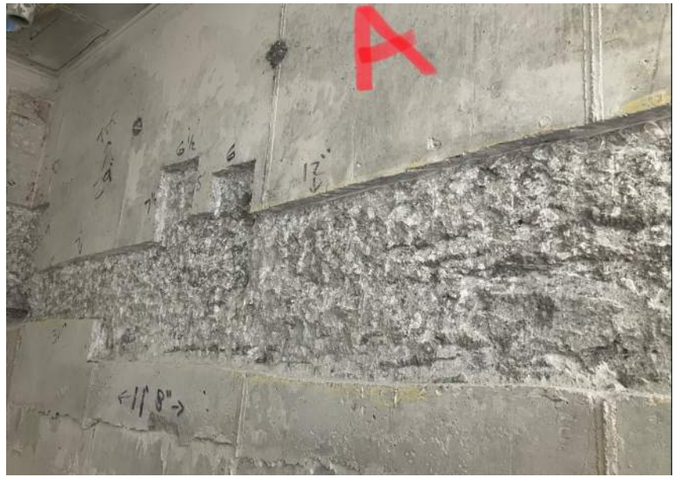
After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3



Before Repair

Before Repair

Before Repair

PHOTO 4

After Repair

After Repair

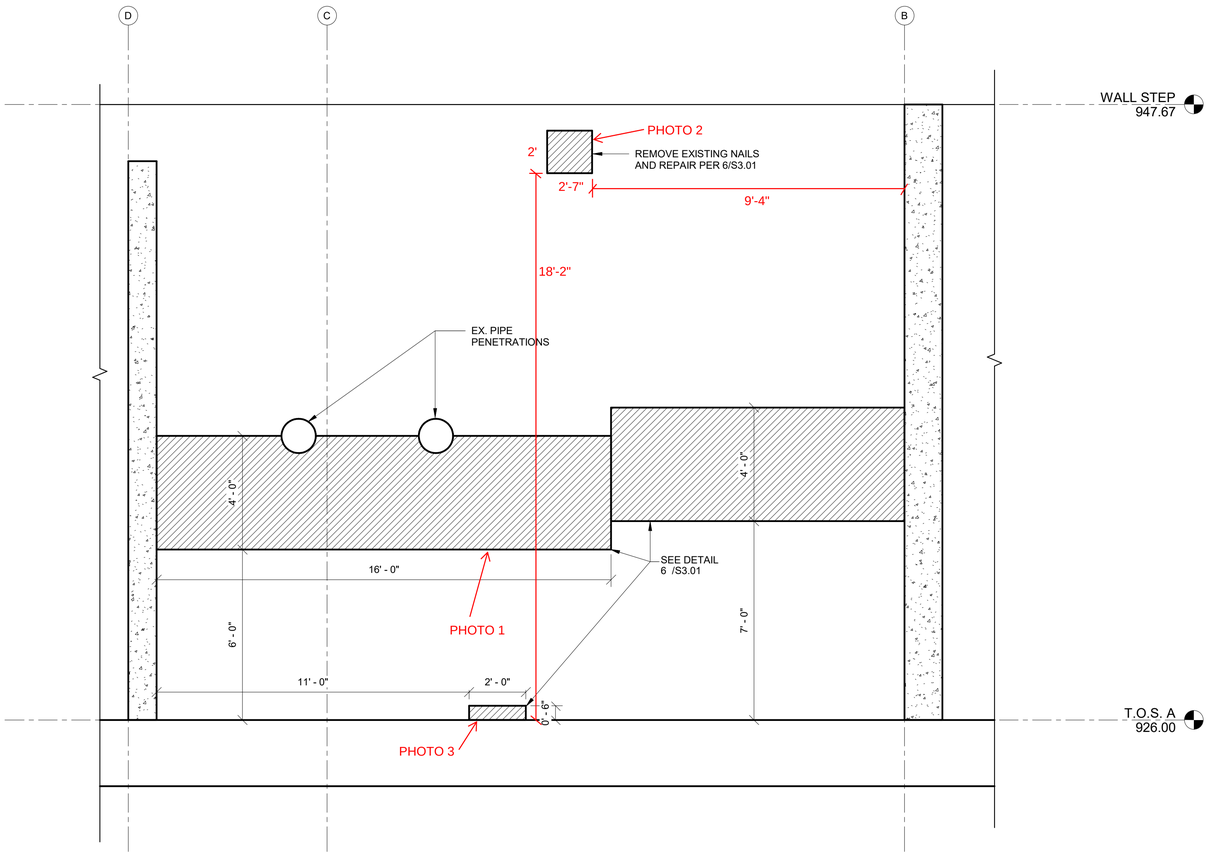
PHOTO 4

Before Repair

Before Repair

After Repair

PHOTO 5



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

ORIGINAL REPAIRS

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

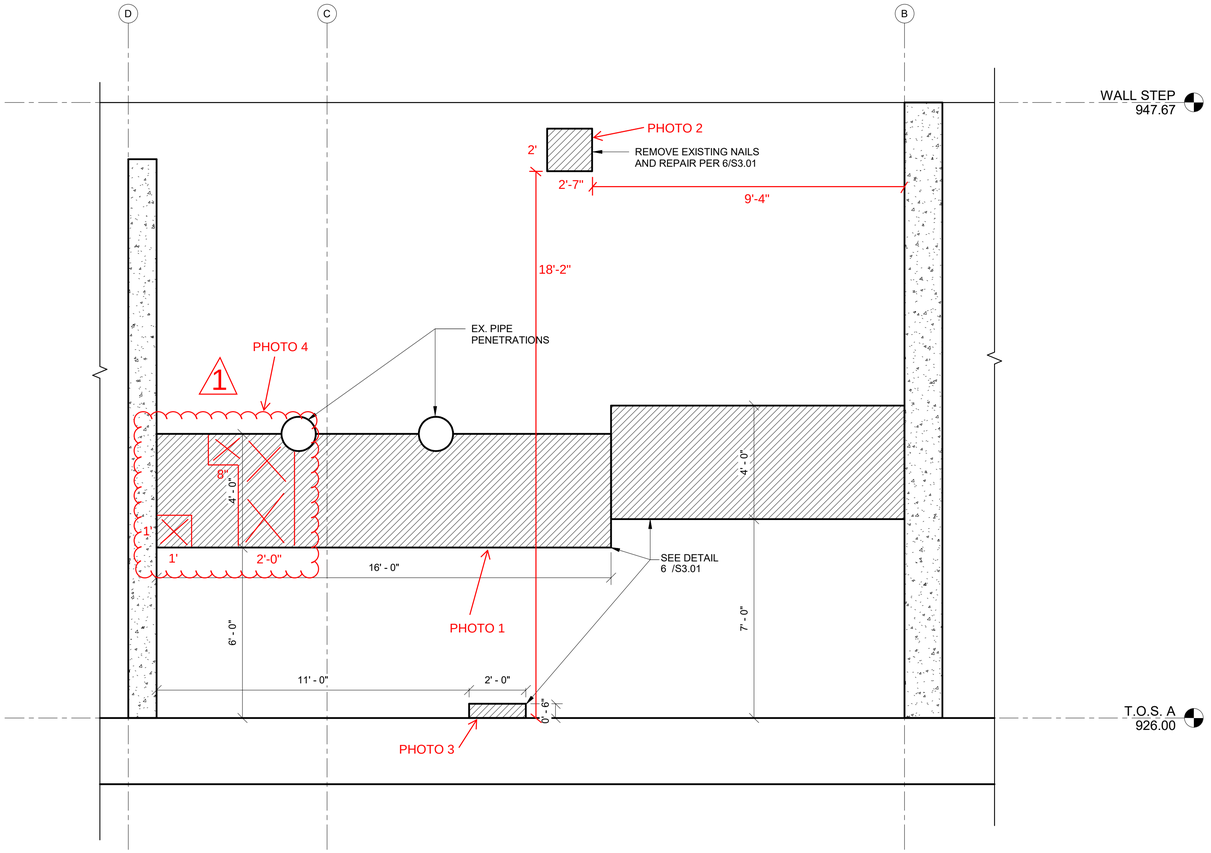
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.13

3/24/2023 5:11:55 PM
C:\Users\chinze\Documents\123.0172.03_STRUC_(R23)_chinzeHEBER.rvt



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

1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.13

3/24/2023 5:11:55 PM
C:\Users\chinze\Documents\123.0172.03_STRUC_(R23)_chinzeHEBER.rvt

Before Repair

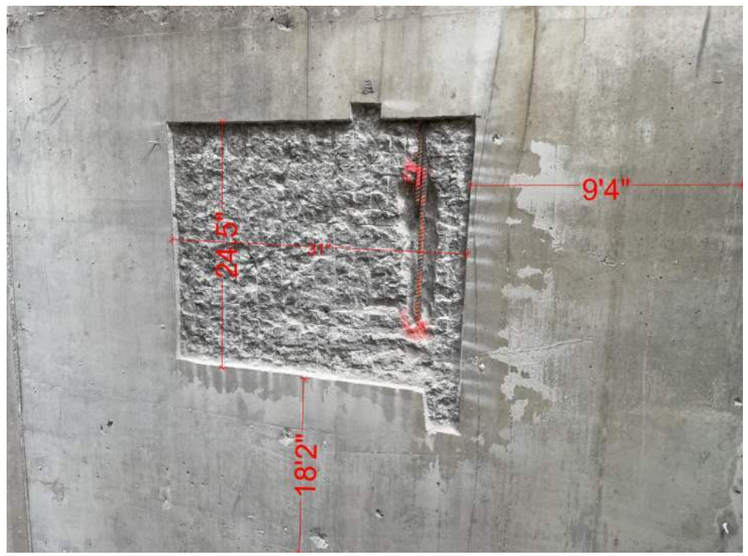
After Repair

After Repair

PHOTO 1

After Repair

PHOTO 1



Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

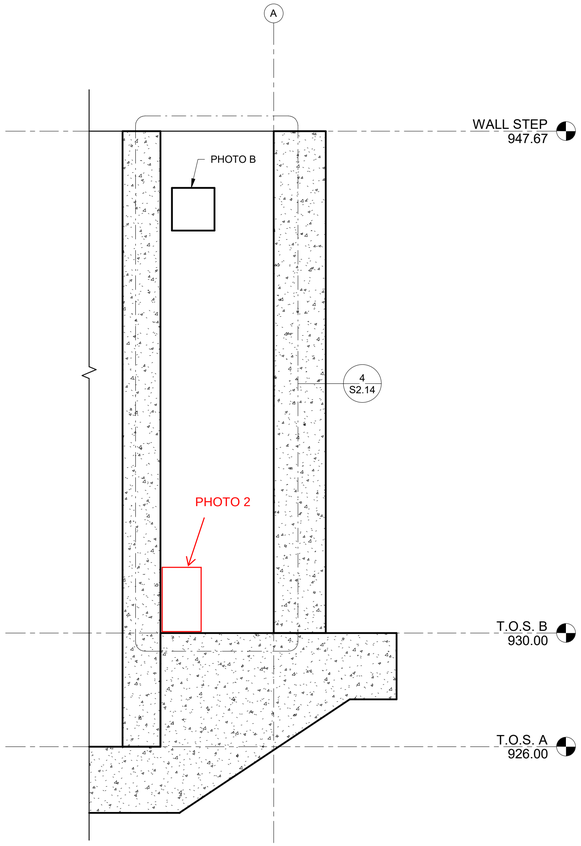
Before Repair

After Repair

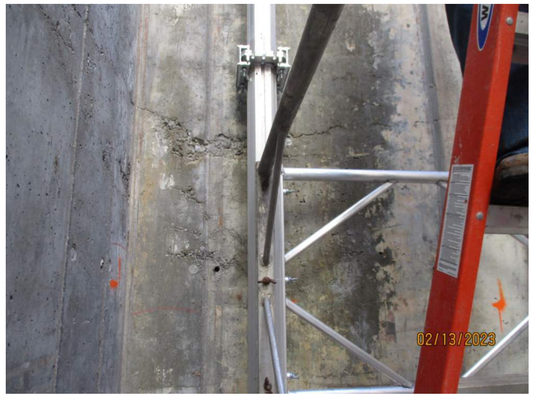
PHOTO 4

1

S2.13

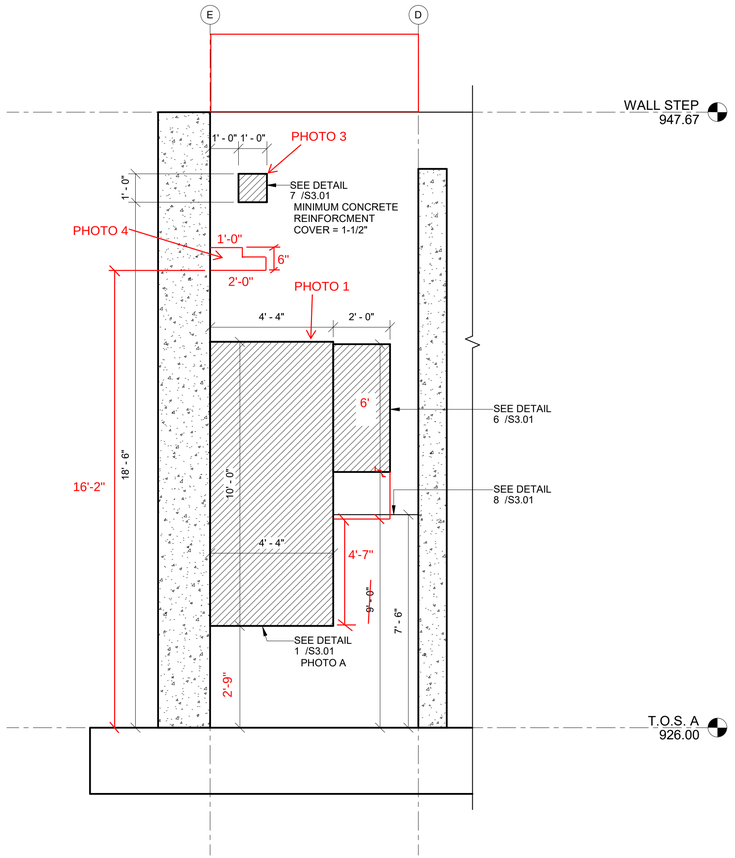


1 INTERIOR ELEVATION
3/8" = 1'-0"



3 PHOTO A
3/4" = 1'-0"

4 PHOTO B
3/8" = 1'-0"



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS LIMIT
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.14

3/24/2023 5:11:56 PM
C:\Users\chrisn\Documents\123.0172.03_STRUC_(R22)_chrisn65BDR.rvt

Before Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

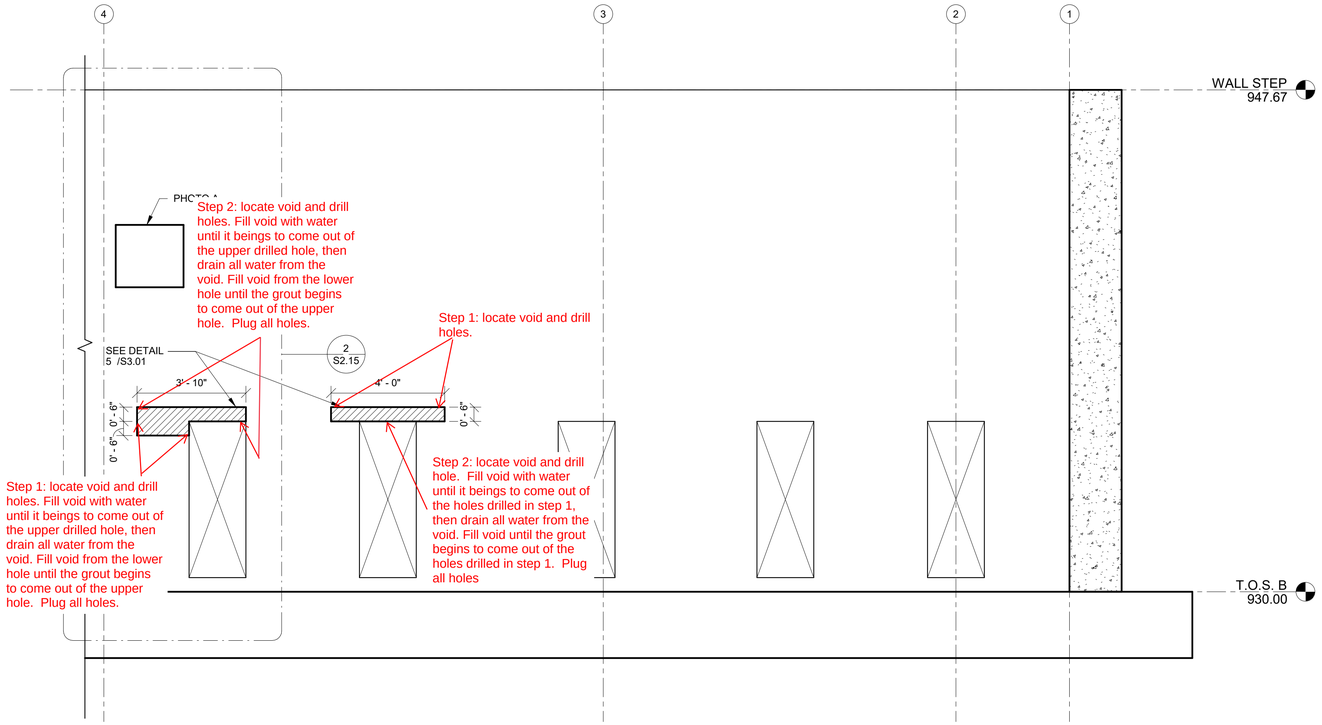
After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4



1 EXTERIOR ELEVATION
3/8" = 1'-0"

2 PHOTO A
1" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

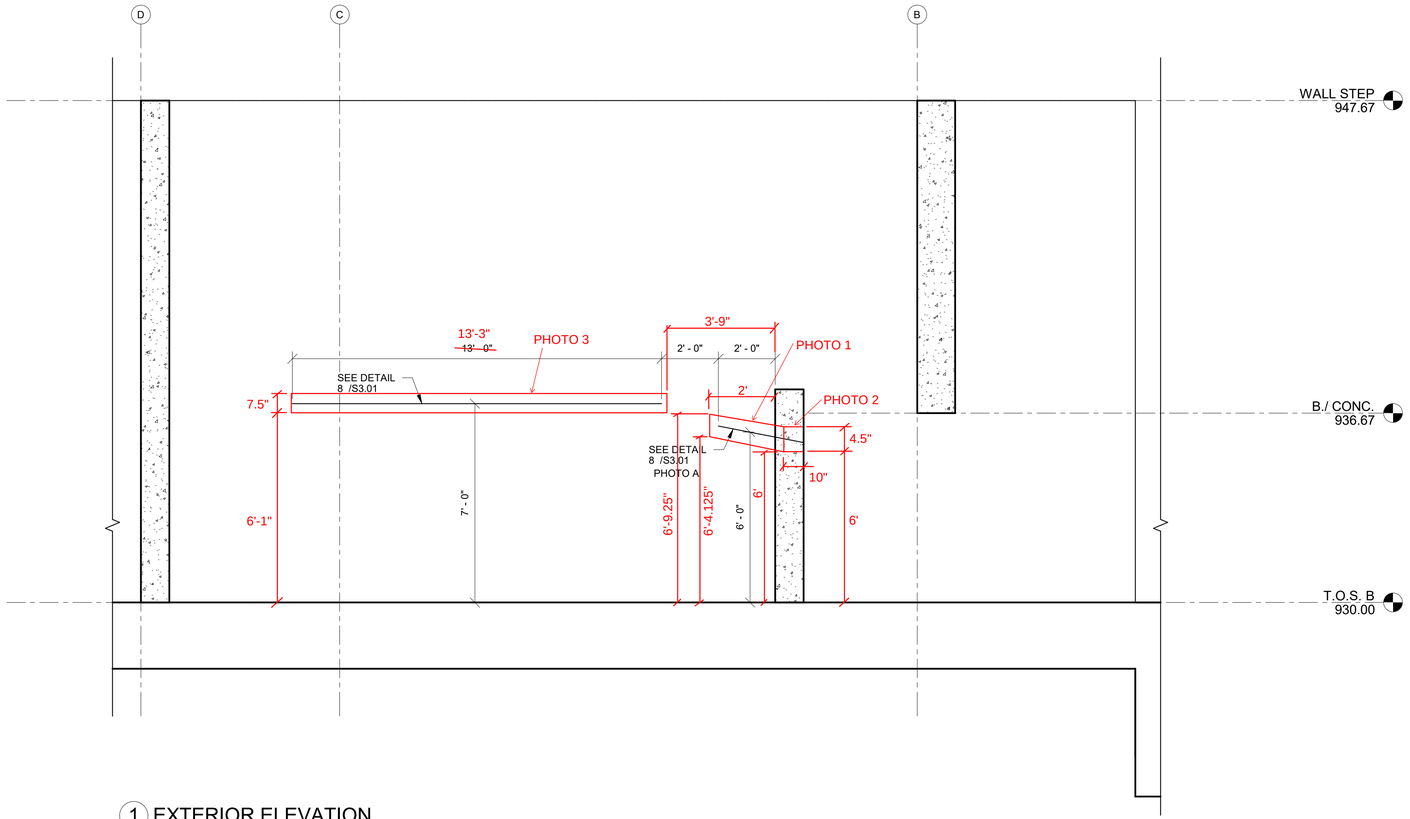
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.15

3/24/2023 5:11:56 PM
C:\Users\chmze\Documents\123.0172.03_STRUC_(RZ2)_chmze#SBSR.rvt



1 EXTERIOR ELEVATION

3/8" = 1'-0"

2 PHOTO A

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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE

WALL ELEVATIONS

SHEET NO.

S2.16

Before Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

Before Repair

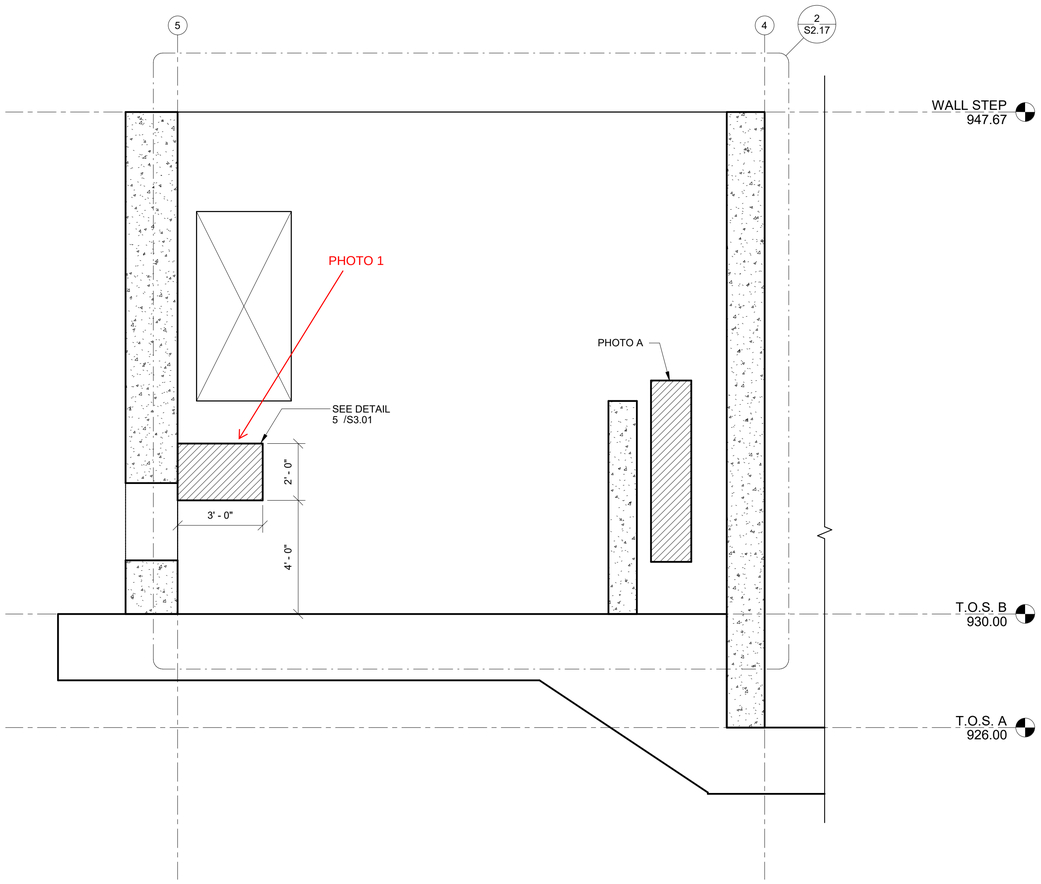
After Repair

After Repair

After Repair

PHOTO 3

S2.16



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

2 PHOTO A

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NEVADA WWTP IMPROVEMENTS LIMITED
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BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

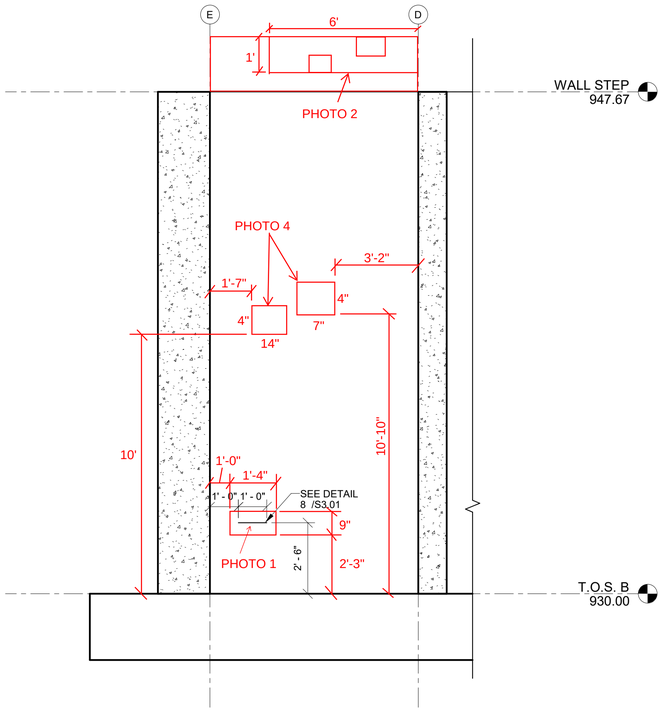
SHEET NO.
S2.17

3/24/2023 5:11:57 PM
C:\Users\chrisn\Documents\123.0172.03_STRUC_(R22)_chrisn65BDR.rvt

Before Repair

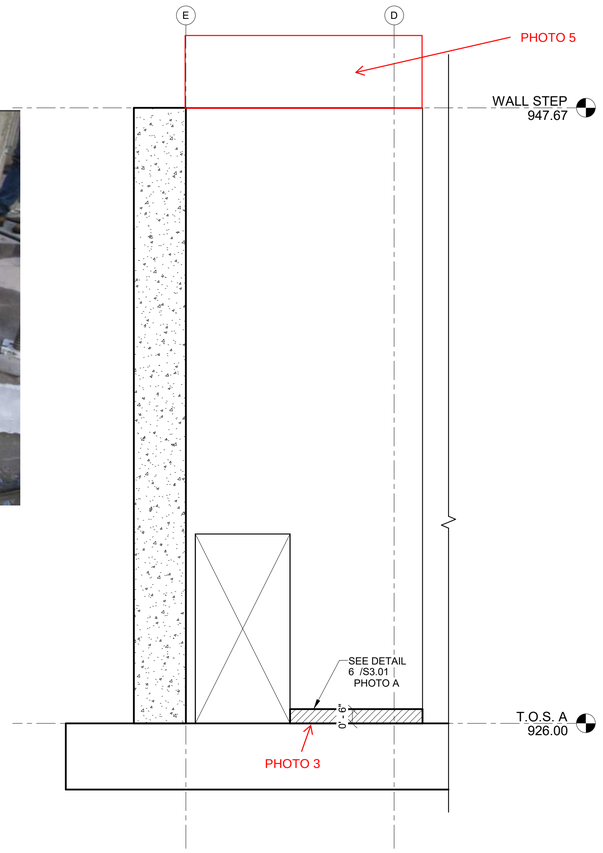
After Repair

PHOTO 1



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

3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.18

3/24/2023 5:11:57 PM
C:\Users\chinze\Documents\123.0172.03_STRUC_(R23)_chinzeHEBER.rvt

Before Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

Before Repair

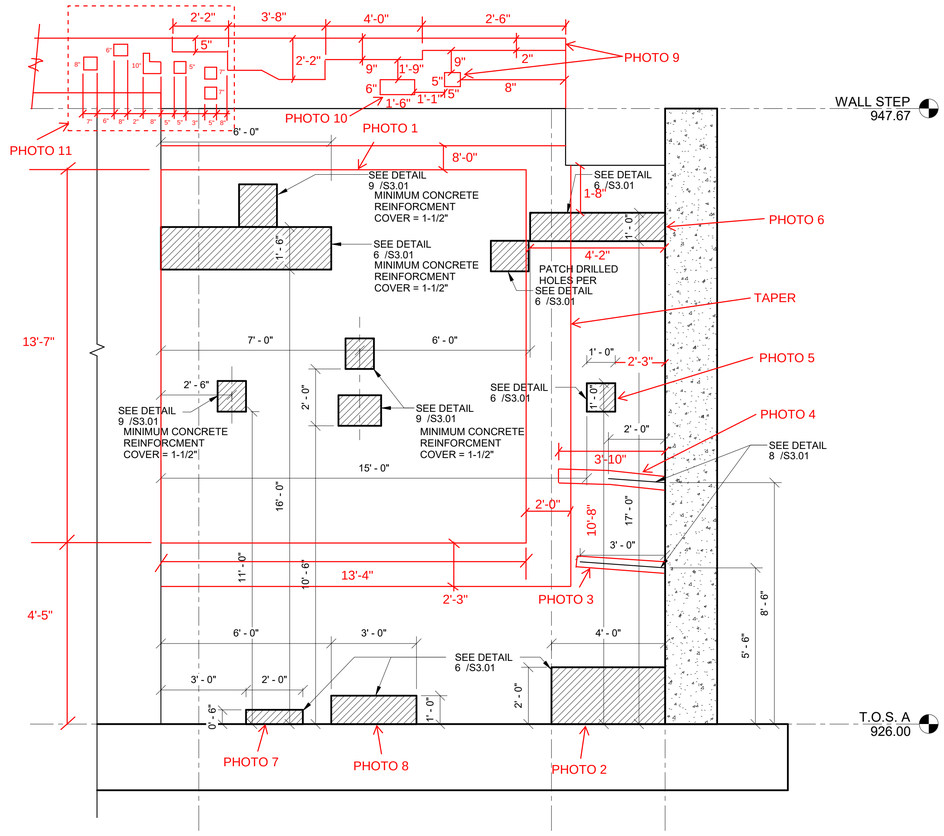
After Repair

PHOTO 4

Before Repair

After Repair

PHOTO 5



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

ORIGINAL REPAIRS

SHUCK BRITSON
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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

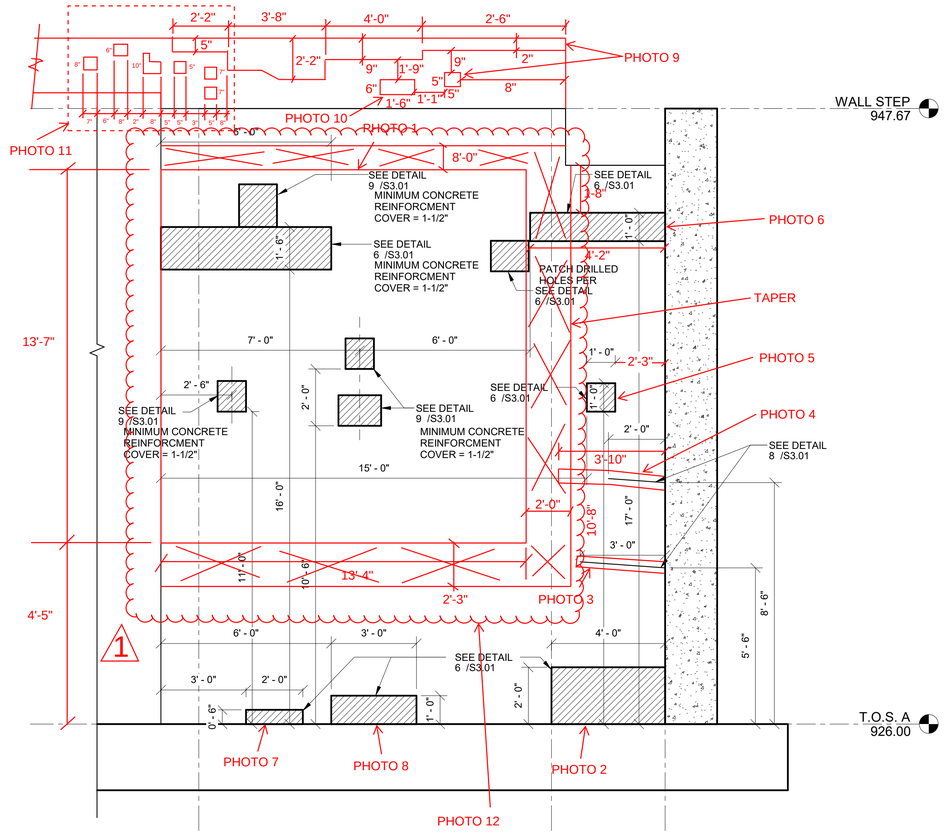
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.19

3/24/2023 5:11:57 PM
C:\Users\chrisn\Documents\123.0172.03_STRUC_(R22)_chrisn65BDR.rvt



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

1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

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NEVADA WWTP IMPROVEMENTS LIMITED
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.19

3/24/2023 5:11:57 PM
C:\Users\chrisn\Documents\123.0172.03_STRUC_(R22)_chrisn65BDR.rvt

Before Repair

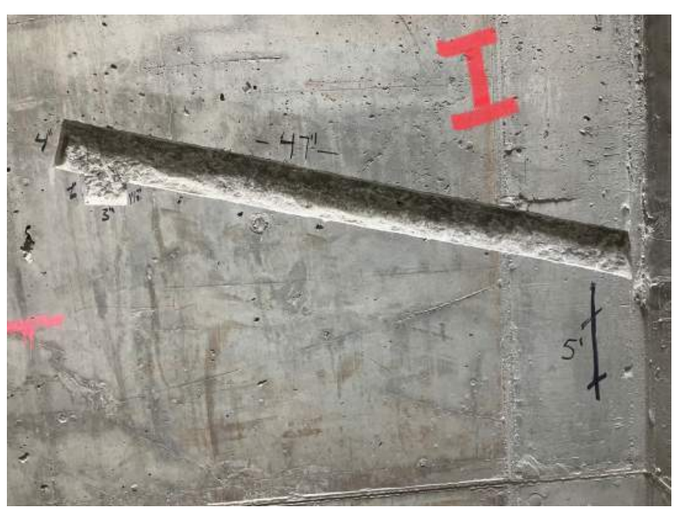
After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2



Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

Before Repair

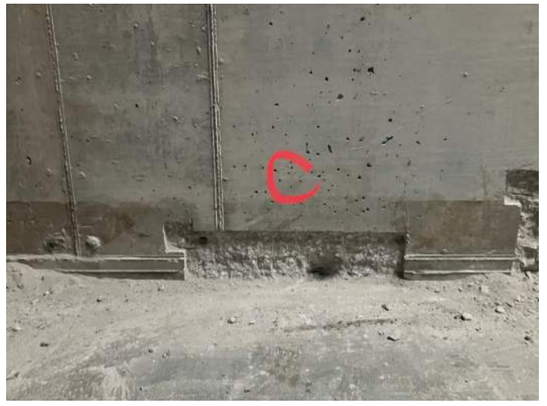
After Repair

PHOTO 5

Before Repair

After Repair

PHOTO 6



Before Repair

After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

Before Repair

Before Repair

PHOTO 9

Before Repair

After Repair

PHOTO 10

Before Repair

Before Repair

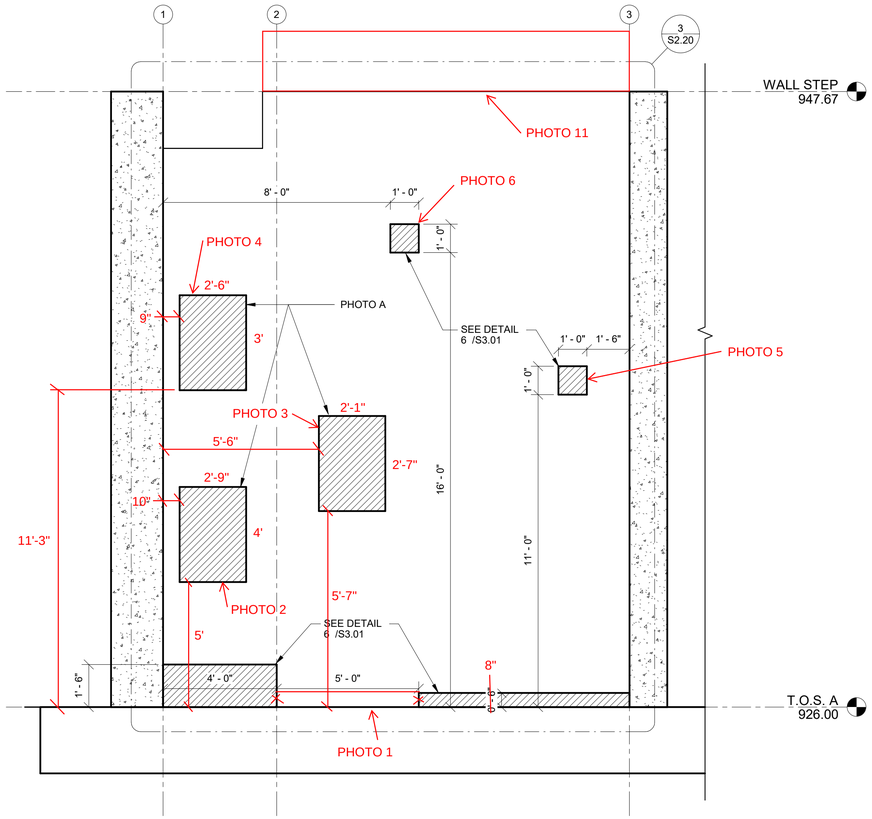
PHOTO 11

Before Repair

After Repair

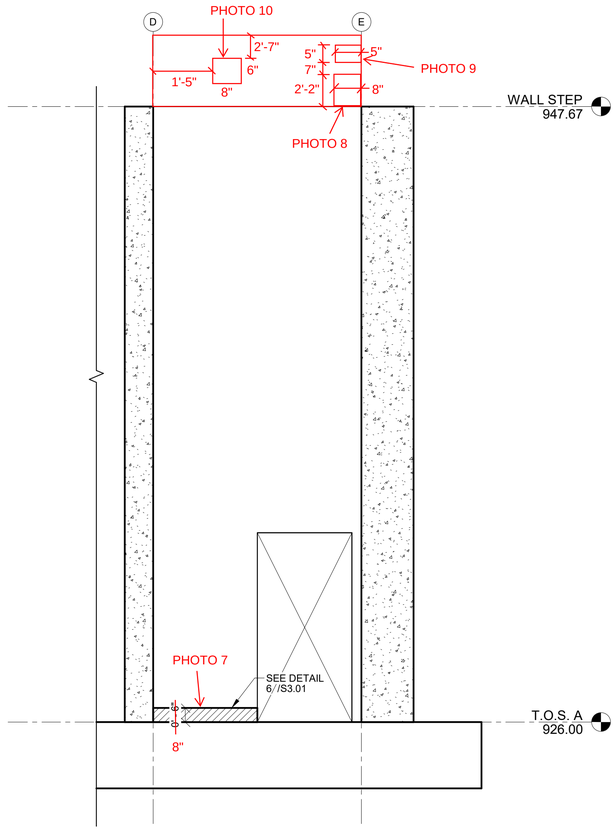
PHOTO 12

1



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

3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.20

3/24/2023 5:11:57 PM
C:\Users\chrisn\Documents\123.0172.03_STRUC_(R22)_chrisn65BDR.rvt

Before Repair

Before Repair

Before Repair

Before Repair

PHOTO 1

After Repair

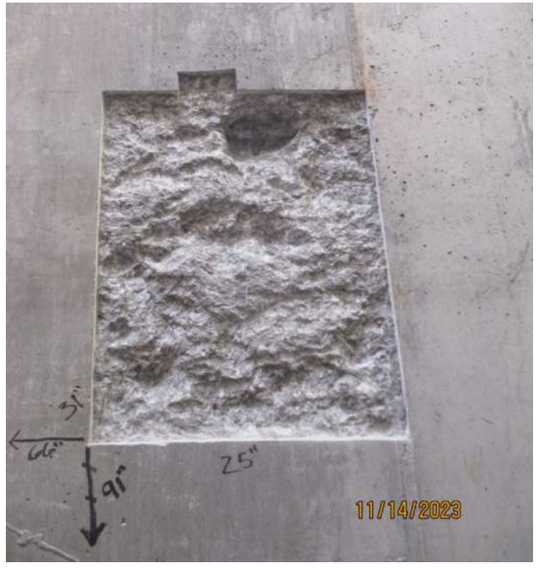
After Repair

PHOTO 1

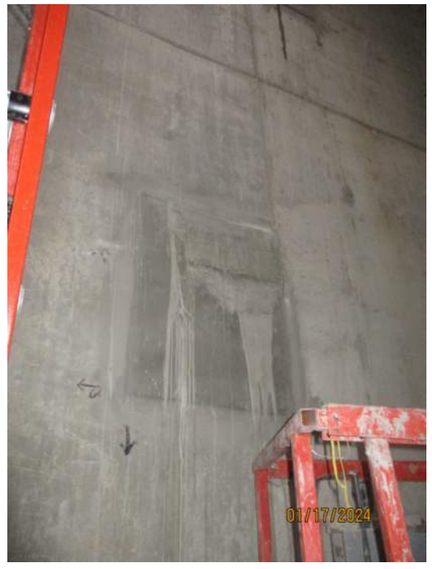
Before Repair

After Repair

PHOTO 2

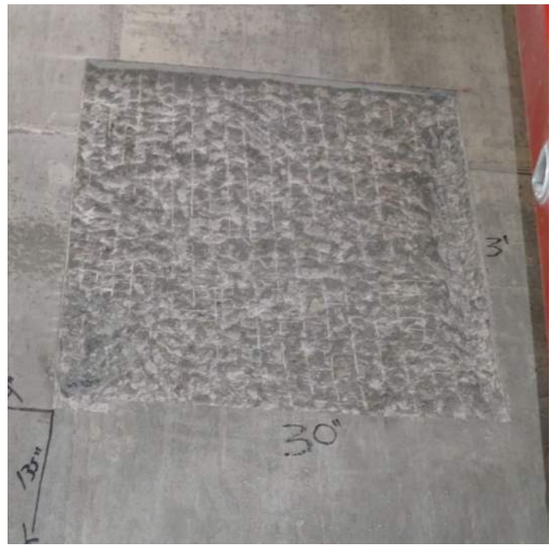


Before Repair



After Repair

PHOTO 3



Before Repair

After Repair

PHOTO 4

Before Repair

After Repair

PHOTO 5

Before Repair

After Repair

PHOTO 6

Before Repair

After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

Before Repair

After Repair

PHOTO 9

Before Repair

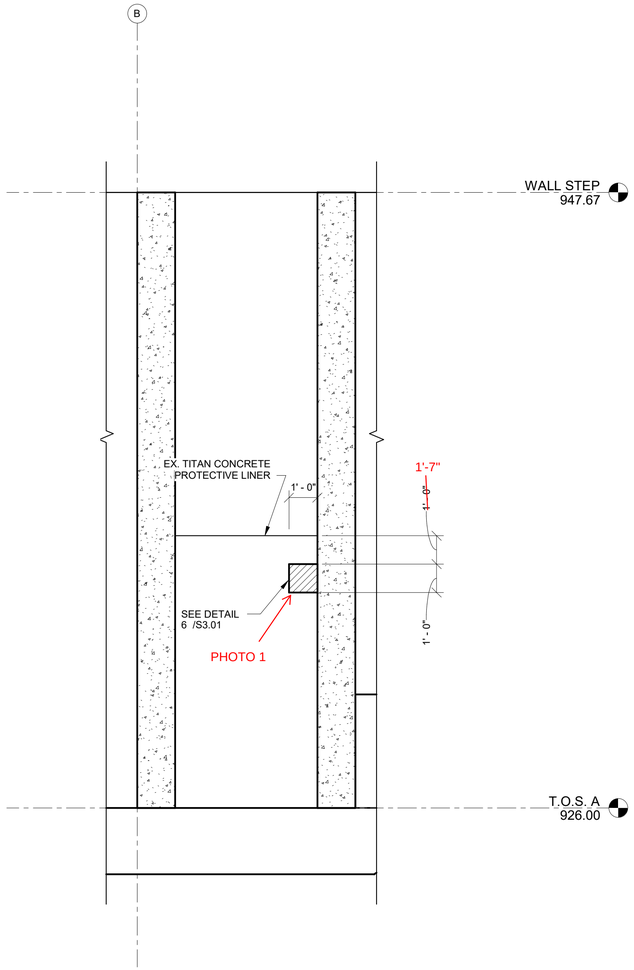
After Repair

PHOTO 10

Before Repair

After Repair

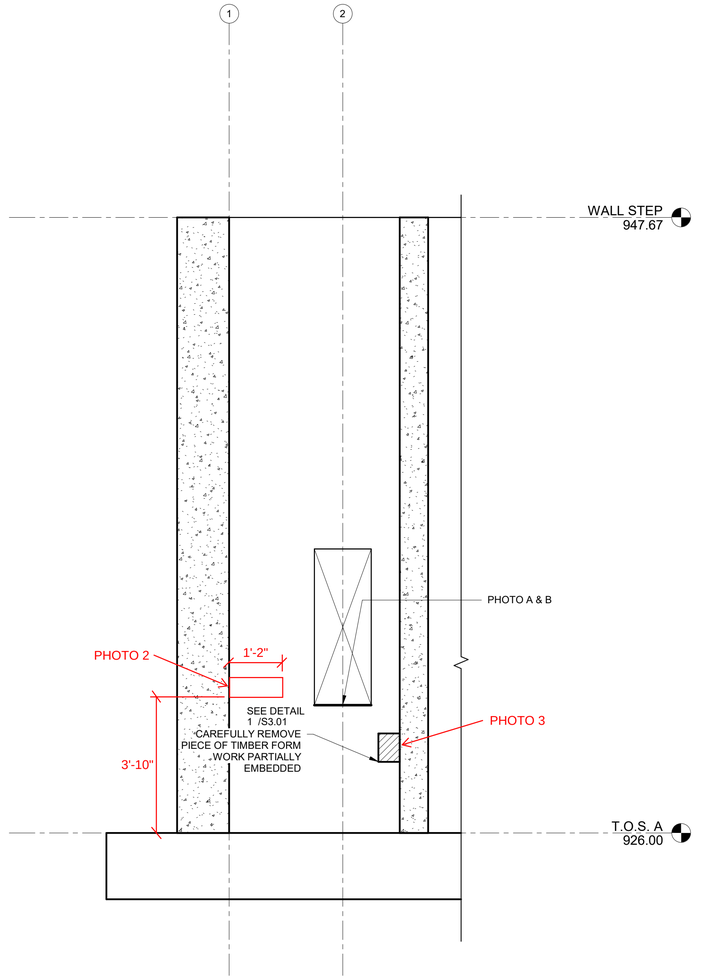
PHOTO 11



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

3 PHOTO A

4 PHOTO B



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.21

3/24/2023 5:11:58 PM
C:\Users\chinael\Documents\123.0172.03_STRUC_(R22)_chinaelHEBER.rvt

Before Repair

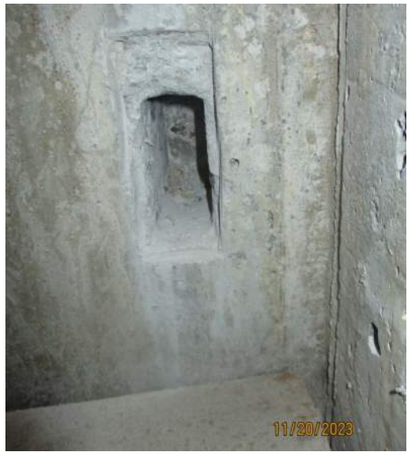
After Repair (fillet was already placed before the after repair photo could be taken)

PHOTO 1

Before Repair

After Repair (fillet was already placed before the after repair photo could be taken)

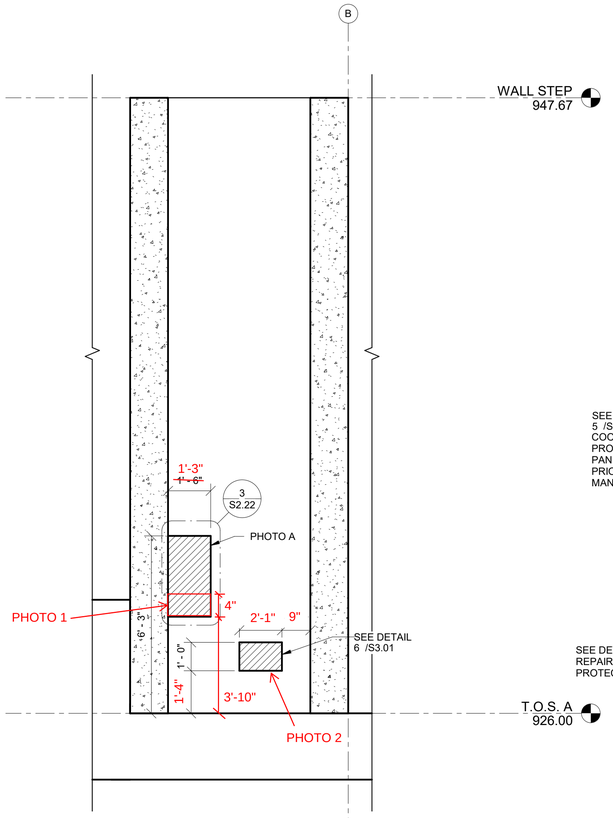
PHOTO 2



Before Repair

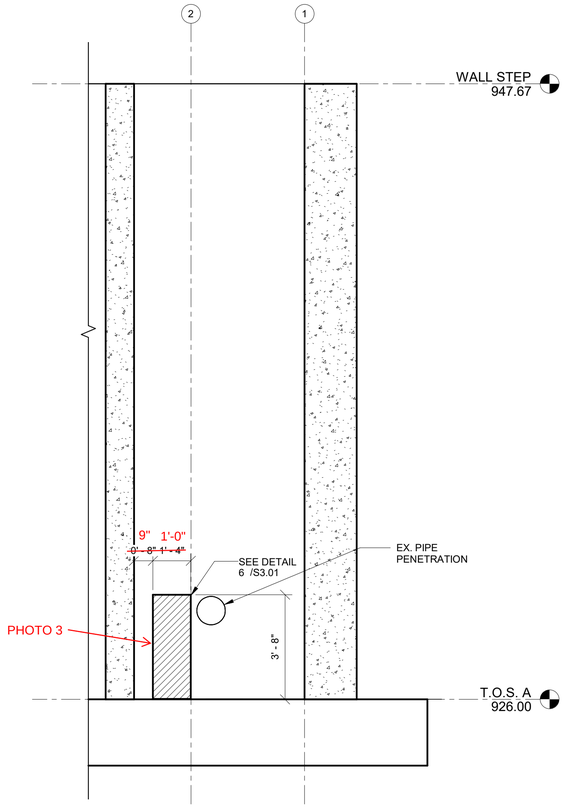
After Repair (fillet was already placed before the after repair photo could be taken)

PHOTO 3



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

3 PHOTO A
3/8" = 1'-0"



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.22

3/24/2023 5:11:58 PM
C:\Users\chinad\Documents\123.0172.03_STRUC_R22_chinadHEBER.rvt

Before Repair

After Repair (fillet was already placed before the after repair photo could be taken)

PHOTO 1

Before Repair

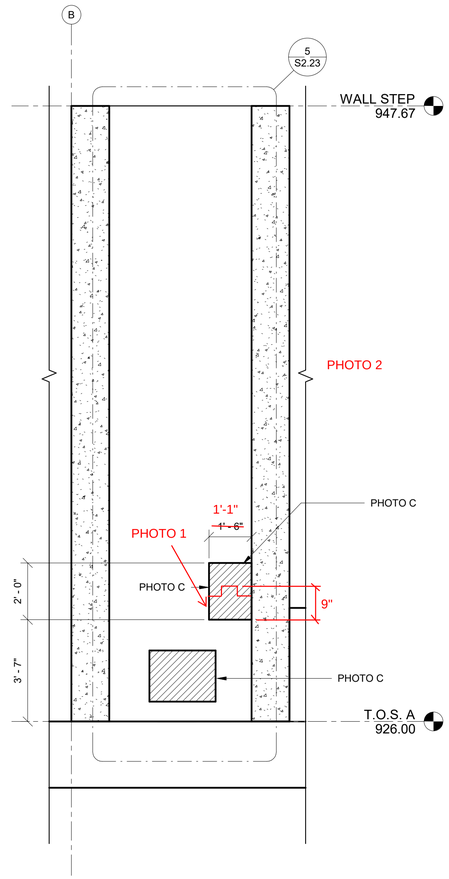
After Repair (fillet was already placed before the after repair photo could be taken)

PHOTO 2

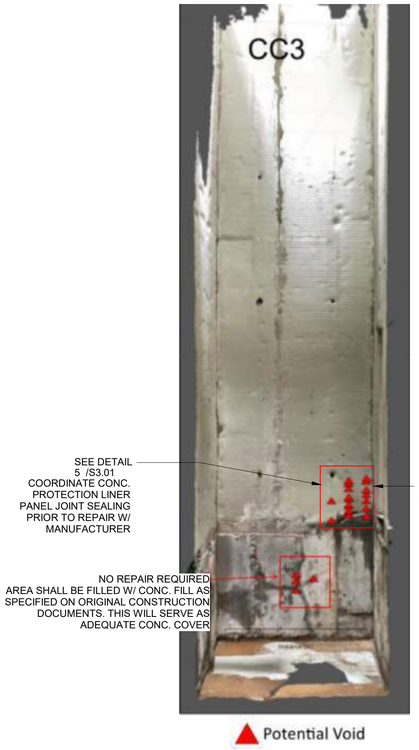
Before Repair

After Repair (fillet was already placed before the after repair photo could be taken)

PHOTO 3



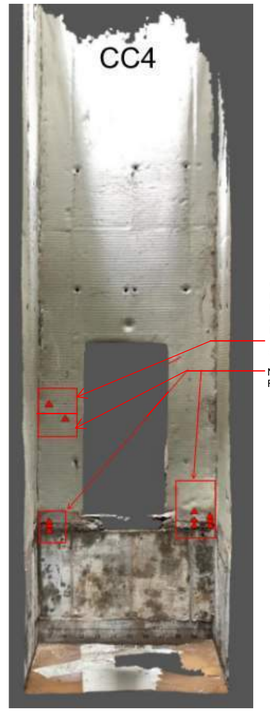
1 INTERIOR ELEVATION
3/8" = 1'-0"



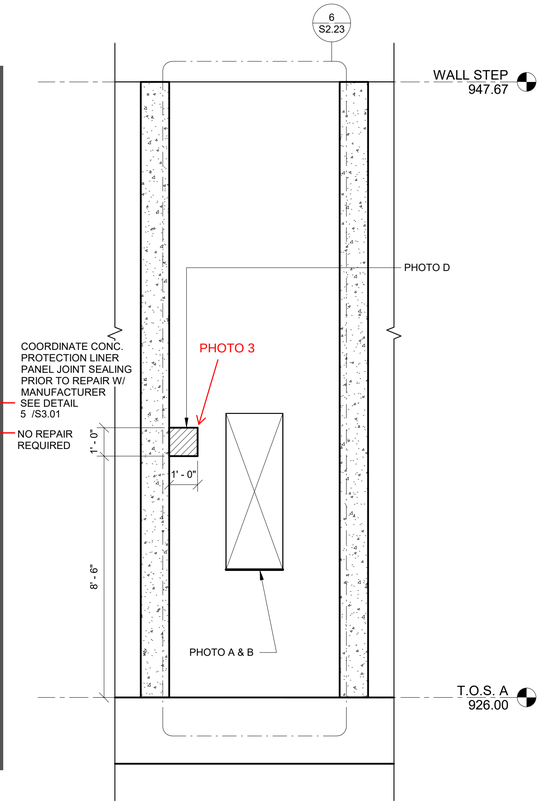
5 PHOTO C

3 PHOTO A

4 PHOTO B
1" = 1'-0"



6 PHOTO D
1 1/2" = 1'-0"



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.23

3/24/2023 5:11:59 PM
C:\Users\chinad\Documents\123.0172.03_STRUC_(R22)_chinadHEBER.rvt

Before Repair

After Repair (fillet was already placed before the after repair photo could be taken)

PHOTO 1

Before Repair

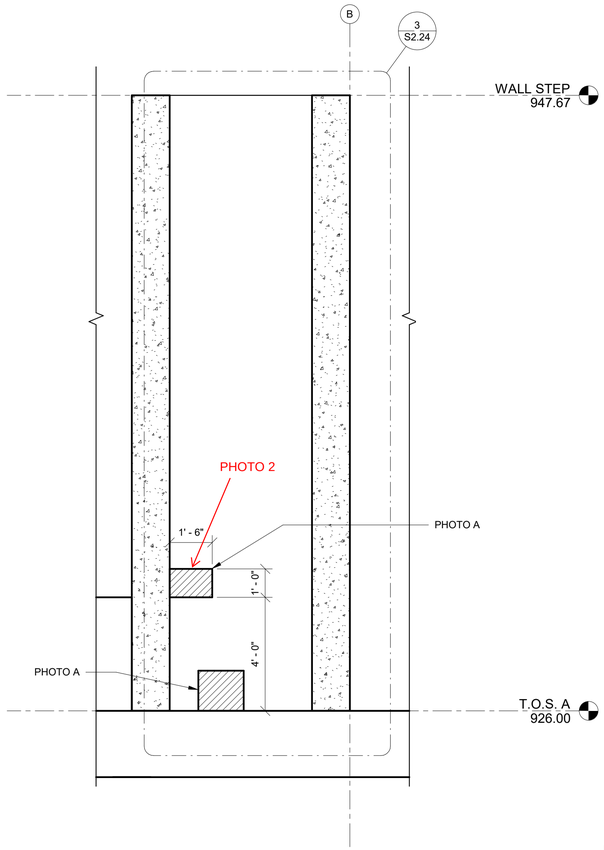
After Repair (fillet was already placed prior to the before and after repair photo could be taken)

PHOTO 2

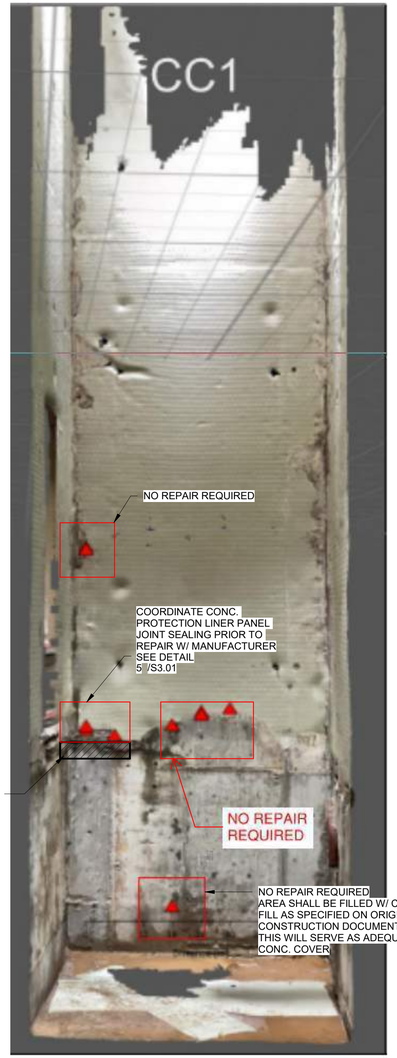
Before Repair

After Repair

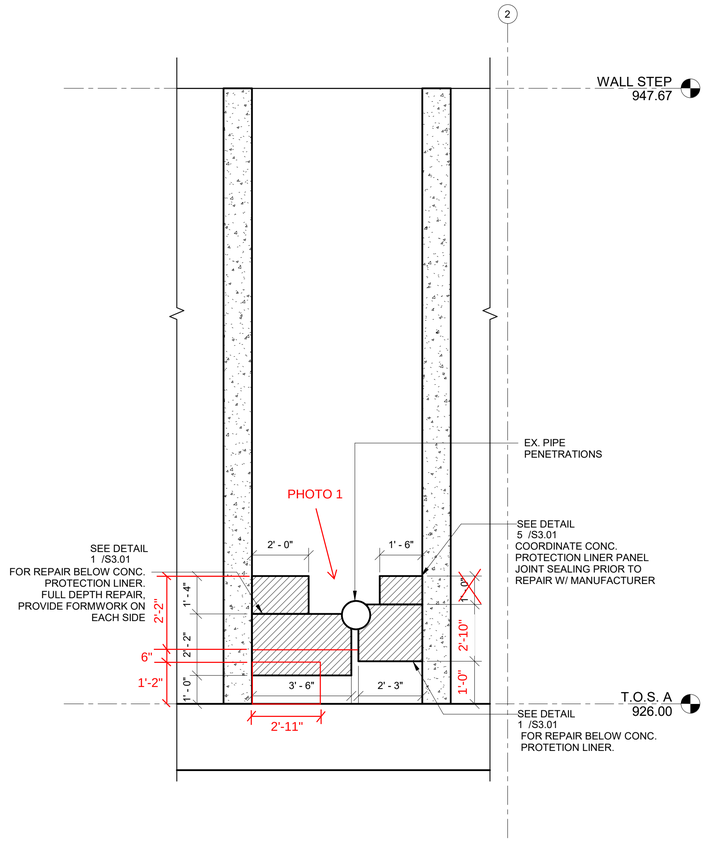
PHOTO 3



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



3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.24

3/24/2023 5:11:59 PM
C:\Users\chrizel\Documents\123.0172.03_STRUC_(R23)_chrizel45BSR.rvt

Before Repair

Before Repair

Before Repair

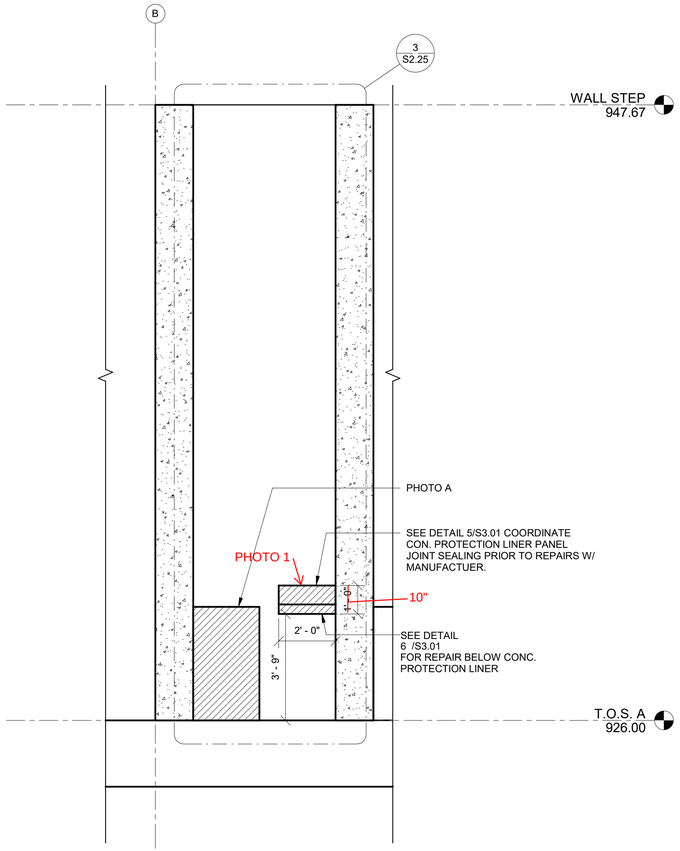
After Repair (fillet was already placed prior to the after repair photo could be taken)

PHOTO 1

Before Repair

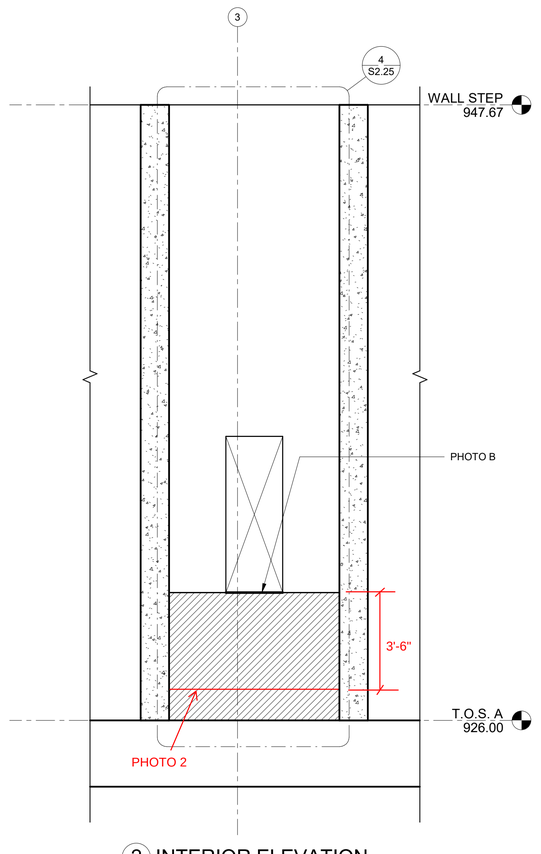
After Repair (fillet was already placed prior to the before and after repair photo could be taken)

PHOTO 2

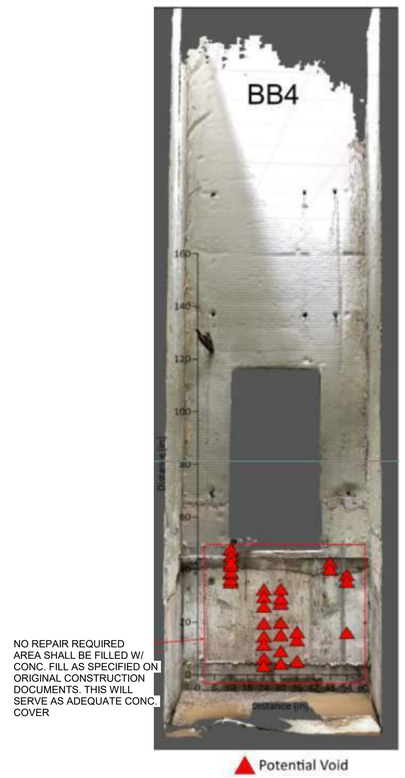


1 INTERIOR ELEVATION
3/8" = 1'-0"

3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"



4 PHOTO B

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BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.25

3/24/2023 5:11:59 PM
C:\Users\chrise\Documents\123.0172.03_STRUC_(R22)_chrise#SBDR.rvt

Before Repair

After Repair (fillet was already placed prior to the after repair photo could be taken)

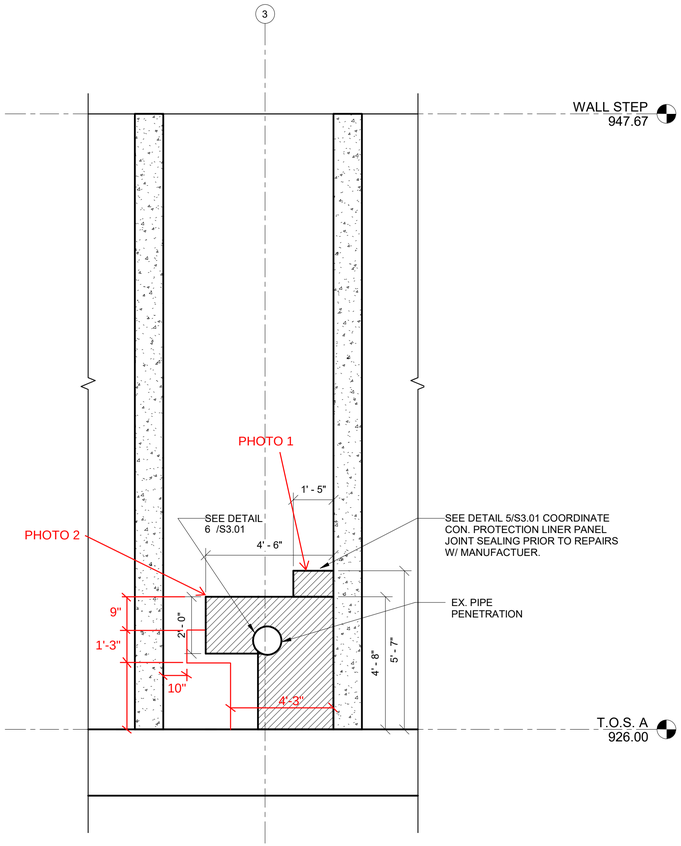
PHOTO 1

Before Repair

Before Repair

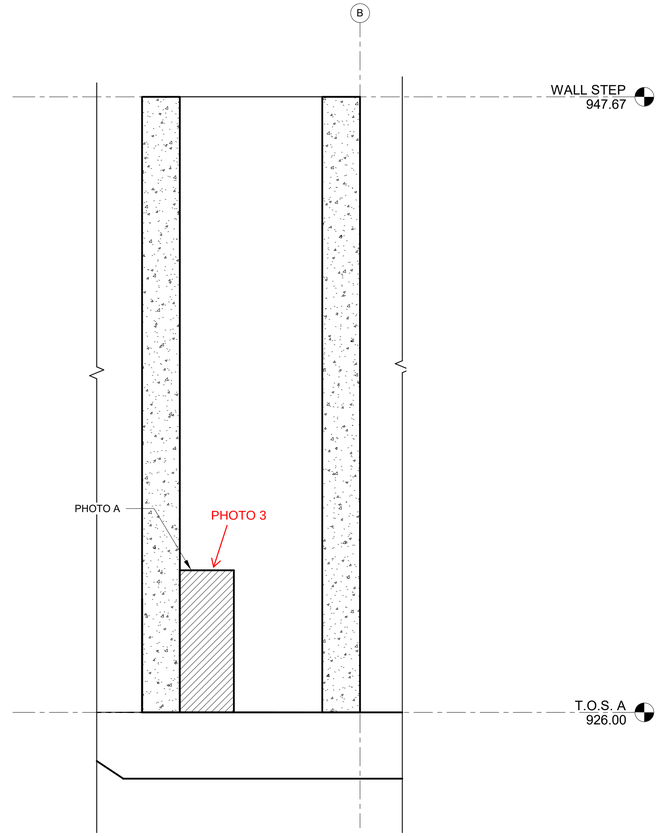
After Repair (fillet was already placed prior to the after repair photo could be taken)

PHOTO 2



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

3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"

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Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.26

3/24/2023 5:12:00 PM
C:\Users\chrisn\Documents\123.0172.03_STRUC_(R22)_chrisn65BDR.rvt

Before Repair

After Repair (fillet was already placed prior to the after repair photo could be taken)

PHOTO 1

Before Repair

Final Photo

PHOTO 3

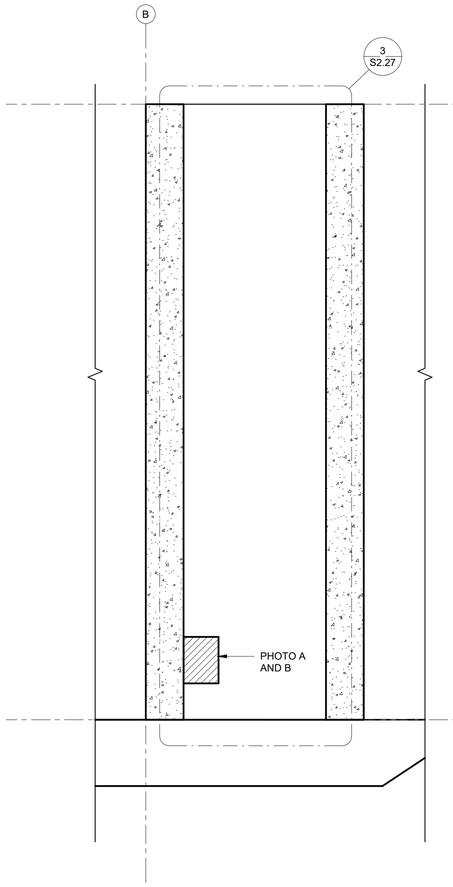
Before Repair

Before Repair

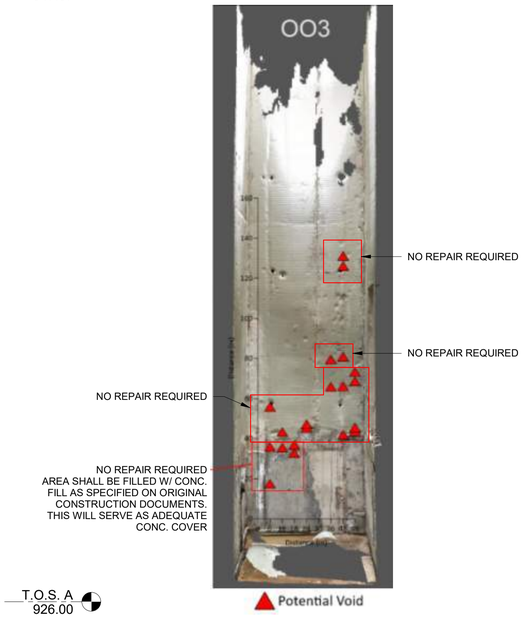
Before Repair

After Repair (fillet was already placed prior to the after repair photo could be taken)

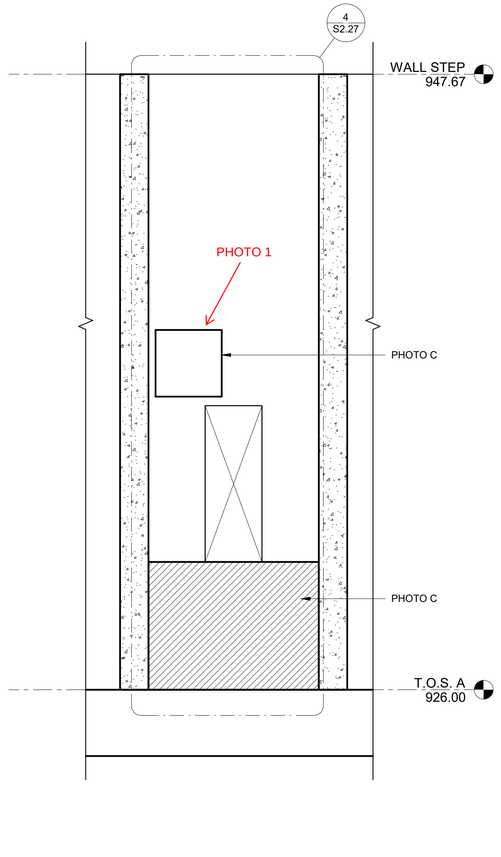
PHOTO 2



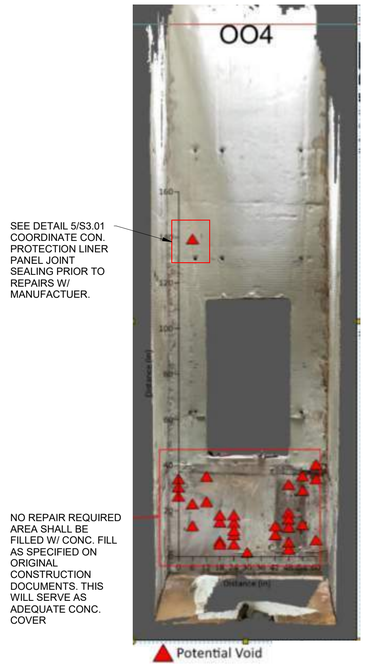
1 INTERIOR ELEVATION
3/8" = 1'-0"



3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"



5 PHOTO C
1 1/2" = 1'-0"

4 PHOTO B

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NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR

BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

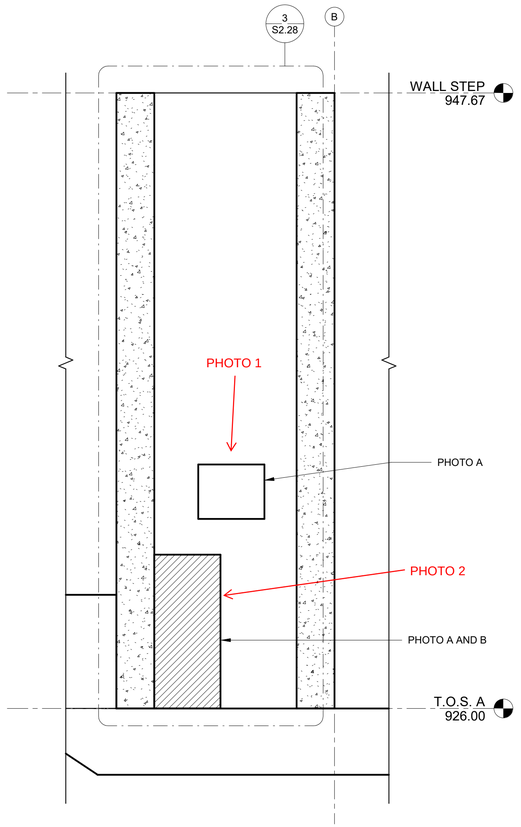
SHEET NO.
S2.27

3/24/2023 5:12:00 PM
C:\Users\chrisr\Documents\123.0172.03_STRUC_(R22)_chrisr65BDR.rvt

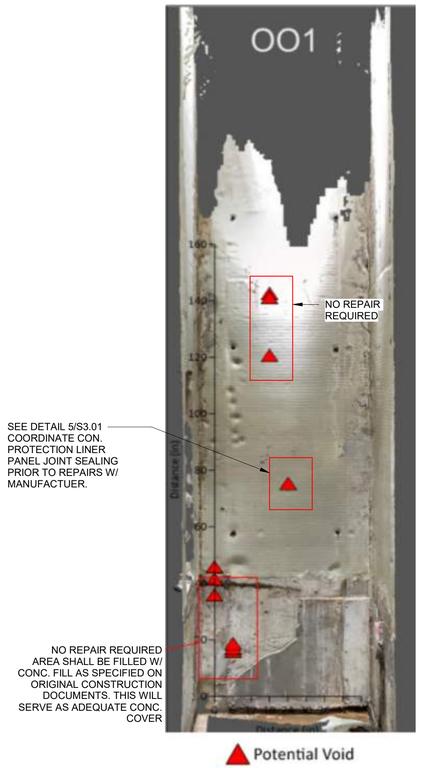
Before Repair

After Repair

PHOTO 1



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



3 PHOTO A

5 PHOTO C

2 INTERIOR ELEVATION
3/8" = 1'-0"

4 PHOTO B

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CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.28

3/24/2023 5:12:01 PM
C:\Users\chrizel\Documents\123.0172.03_STRUC_(R23)_chrizel45BSR.rvt

Before Repair

After Repair

PHOTO 1

Before Repair

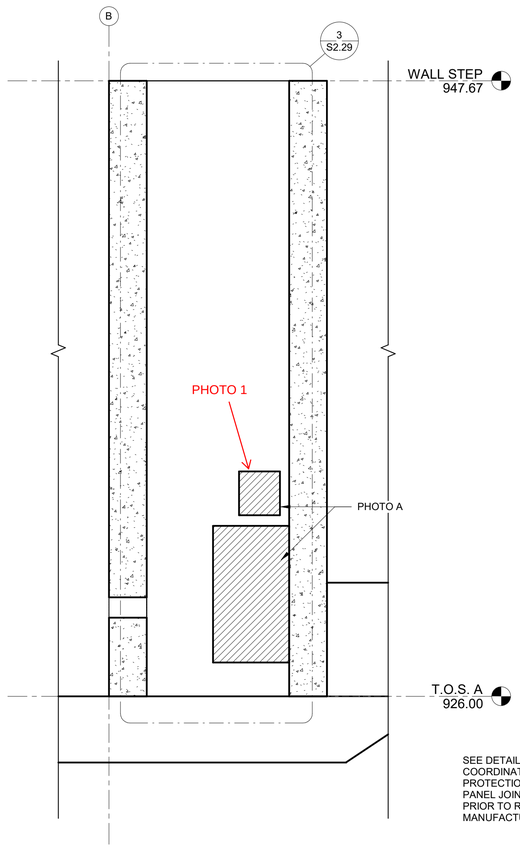
After Repair (fillet was already placed prior to the after repair photo could be taken)

PHOTO 2

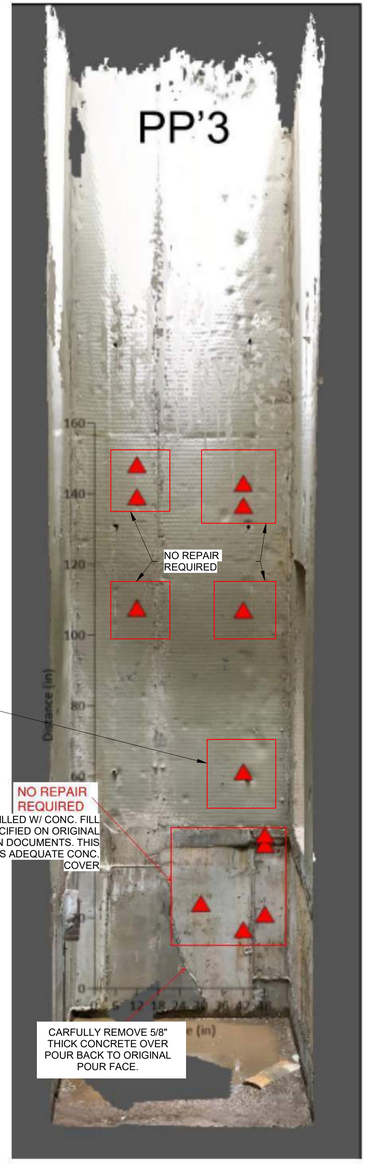
Before Repair

After Repair (fillet was already placed prior to the before and after repair photo could be taken)

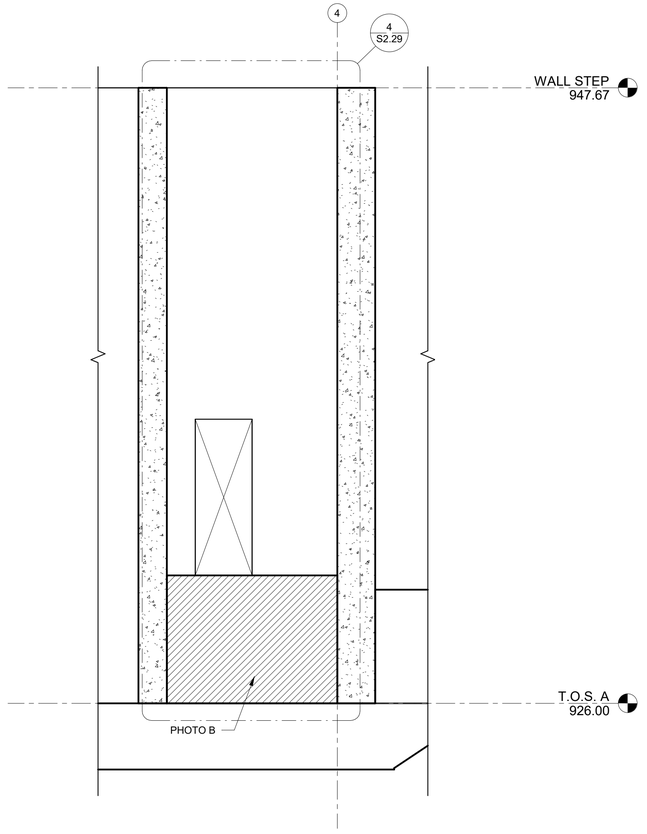
PHOTO 3



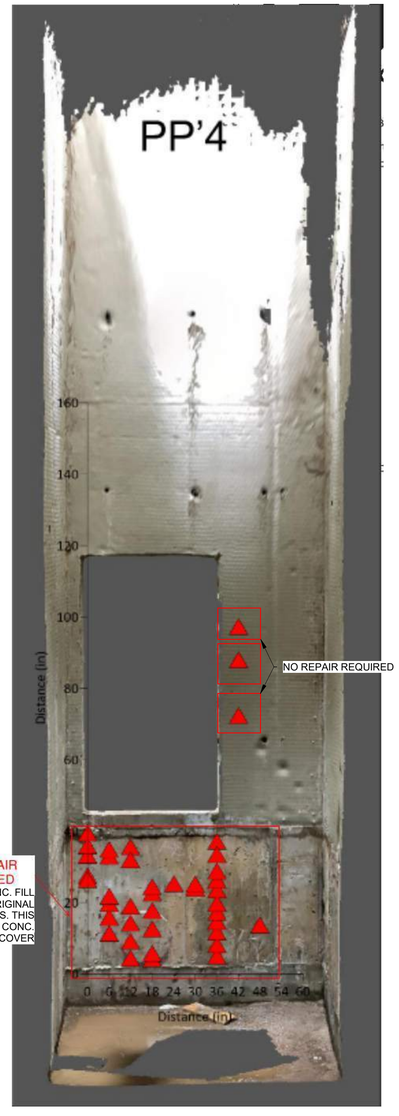
1 INTERIOR ELEVATION
3/8" = 1'-0"



3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"



4 PHOTO B

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BOOMERANG
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Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

SHEET TITLE
WALL ELEVATIONS

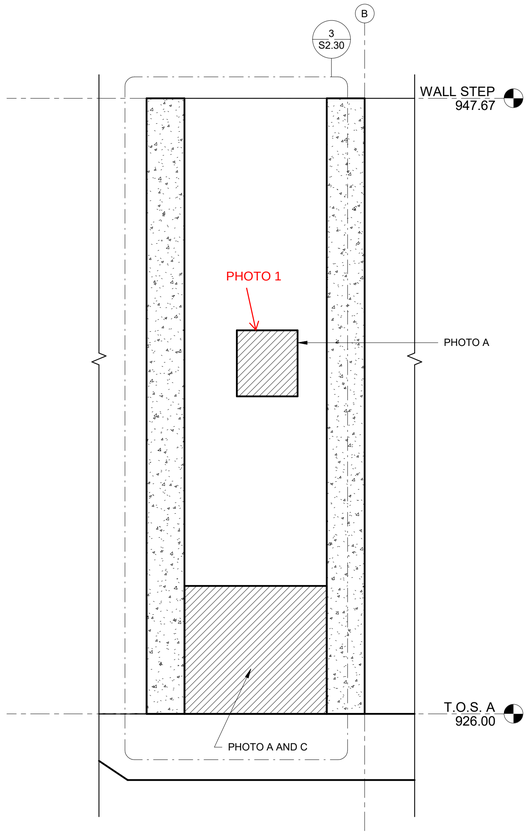
SHEET NO.
S2.29

3/24/2023 5:12:01 PM
C:\Users\chrisw\Documents\123.0172.03_STRUC_(R22)_chrisw45BDR.rvt

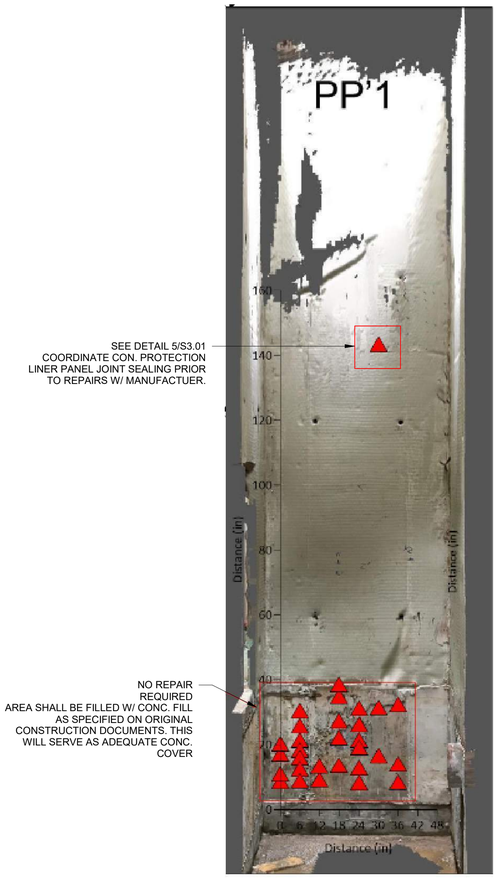
Before Repair

After Repair

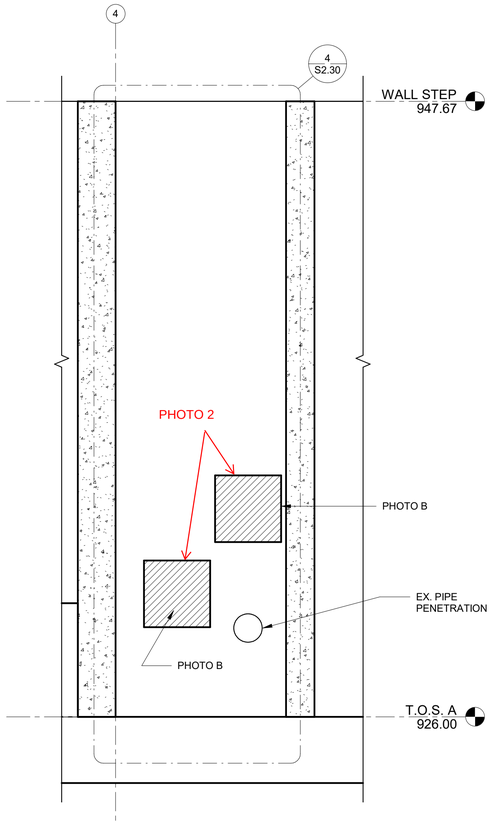
PHOTO 1



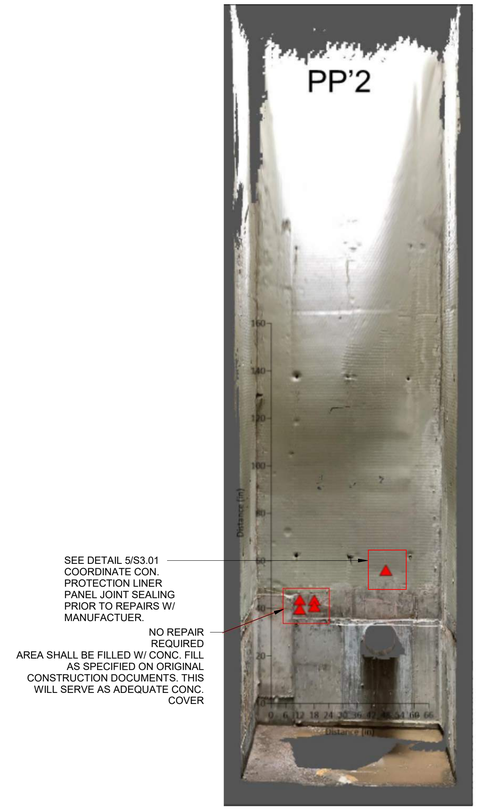
1 INTERIOR ELEVATION
3/8" = 1'-0"



3 PHOTO A



2 INTERIOR ELEVATION
3/8" = 1'-0"



4 PHOTO B

5 PHOTO C
3/16" = 1'-0"

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BOOMERANG
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Project Status

PROJECT NUMBER 123.0172.03
DATE 03/24/2023
SHEET TITLE
WALL ELEVATIONS
SHEET NO.
S2.30

3/24/2023 5:12:02 PM
C:\Users\chrisr\Documents\123.0172.03_STRUC_(R22)_chrisr65BDR.rvt

Before Repair

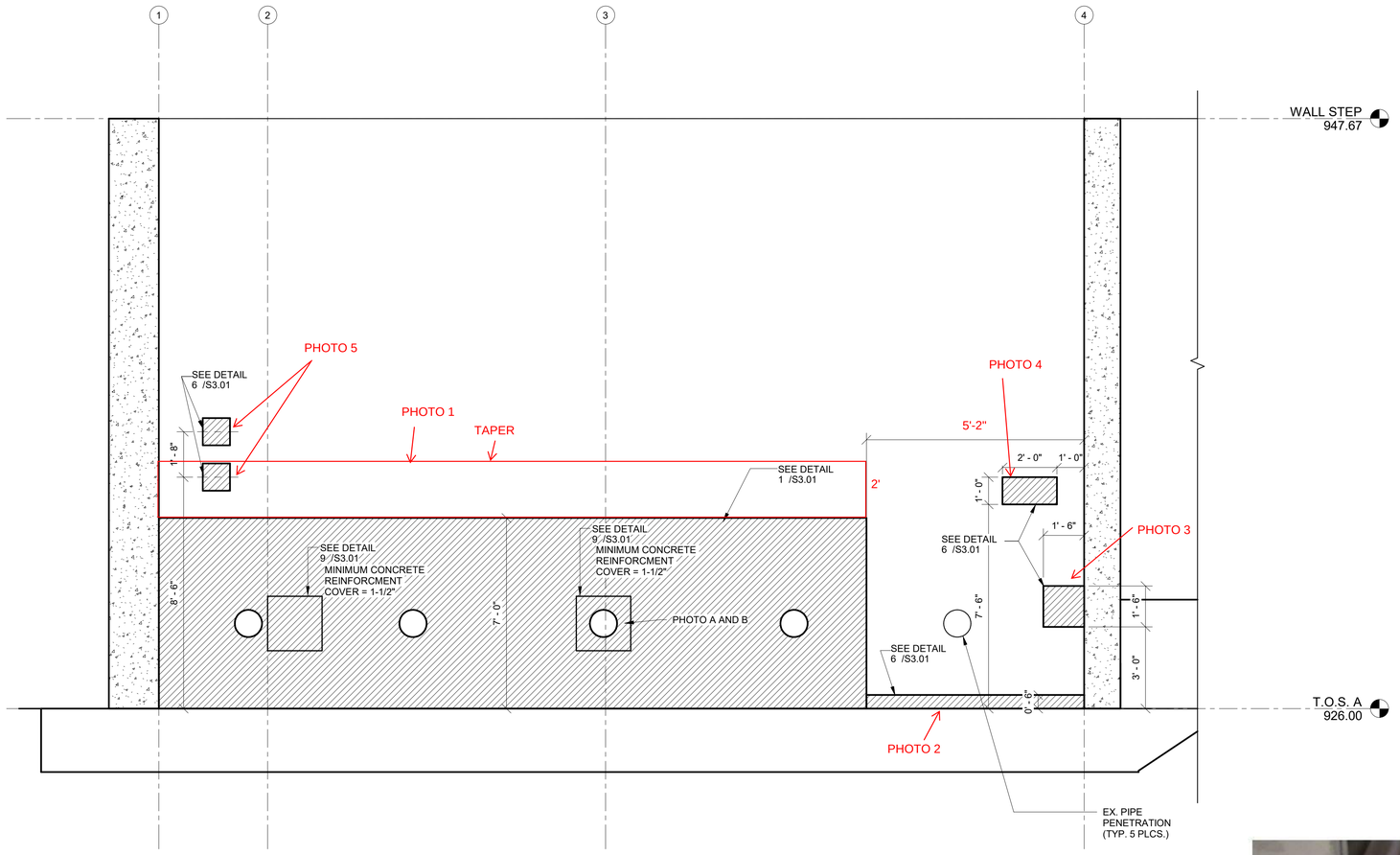
After Repair

PHOTO 1

Before Repair

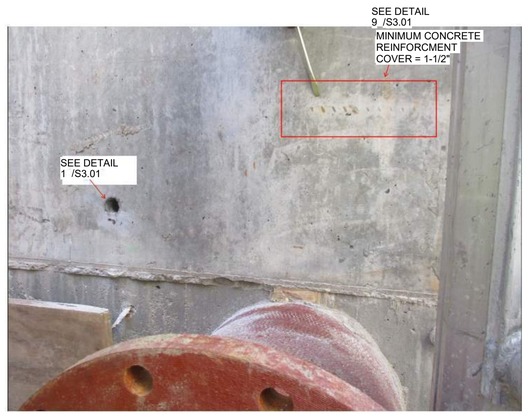
After Repair (fillet was already placed prior to the before and after repair photo could be taken)

PHOTO 2



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

ORIGINAL REPAIRS



2 PHOTO A

3 PHOTO B

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.31

3/24/2023 5:12:02 PM
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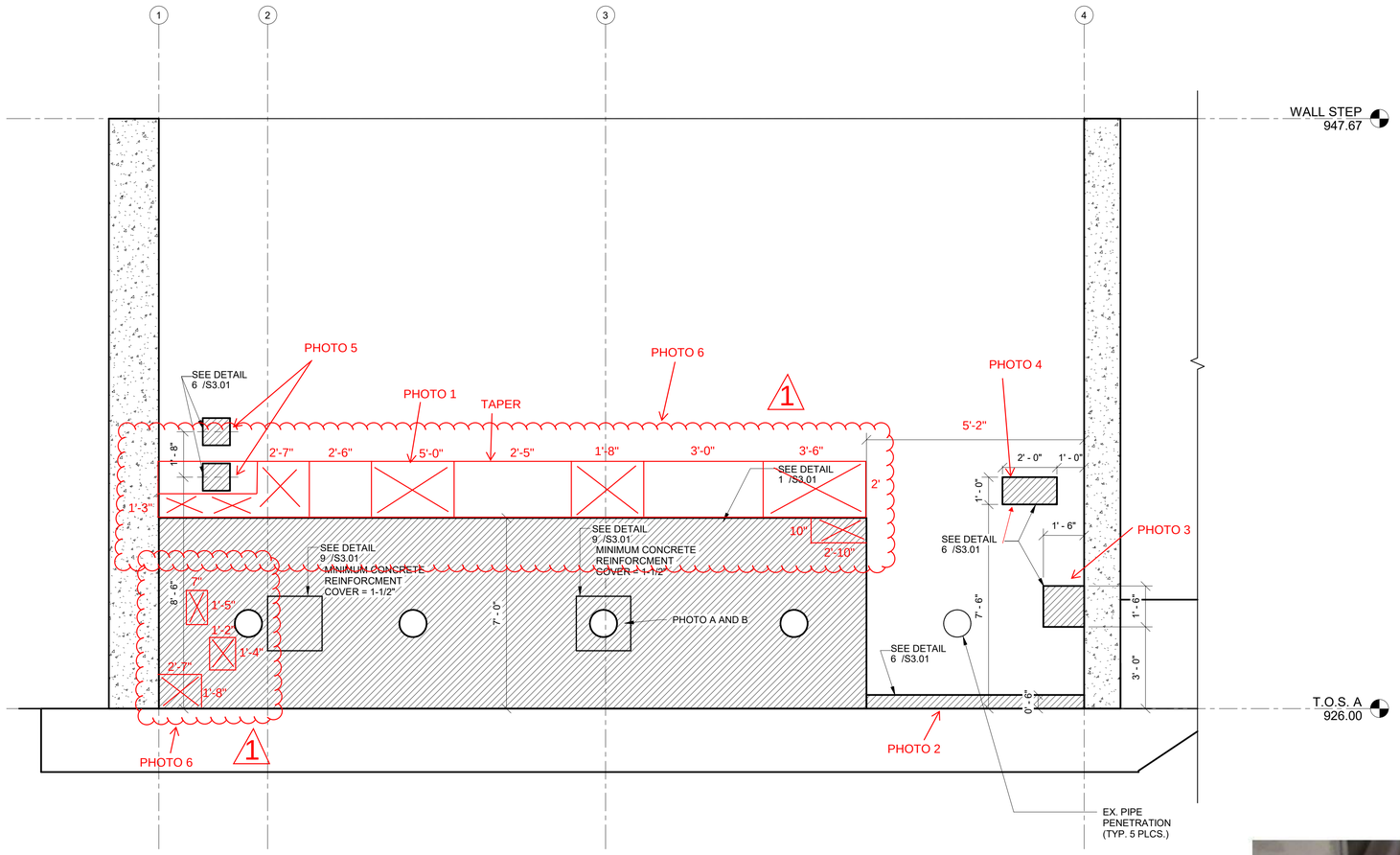
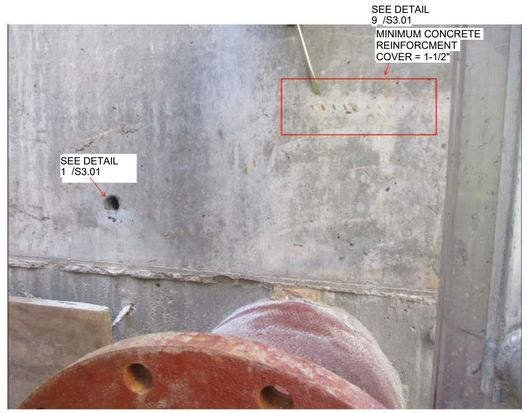


1 INTERIOR ELEVATION
3/8" = 1'-0"

1 REVISION 1: REPAIRED EXISTING REPAIRS



2 PHOTO A

LEGEND:

DENOTES REMOVAL

3 PHOTO B

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.31

3/24/2023 5:12:02 PM
C:\Users\shinze\Documents\123.0172.03_STRUC_(R23)_shinzeHEBER.rvt

Before Repair

Before Repair

Before Repair

After Repair

PHOTO 1

After Repair

After Repair

PHOTO 1

Before Repair

After Repair

PHOTO 2

Before Repair

After Repair

PHOTO 3

Before Repair

After Repair

PHOTO 4

Before Repair

After Repair

PHOTO 5

Before Repair

Before Repair

After Repair

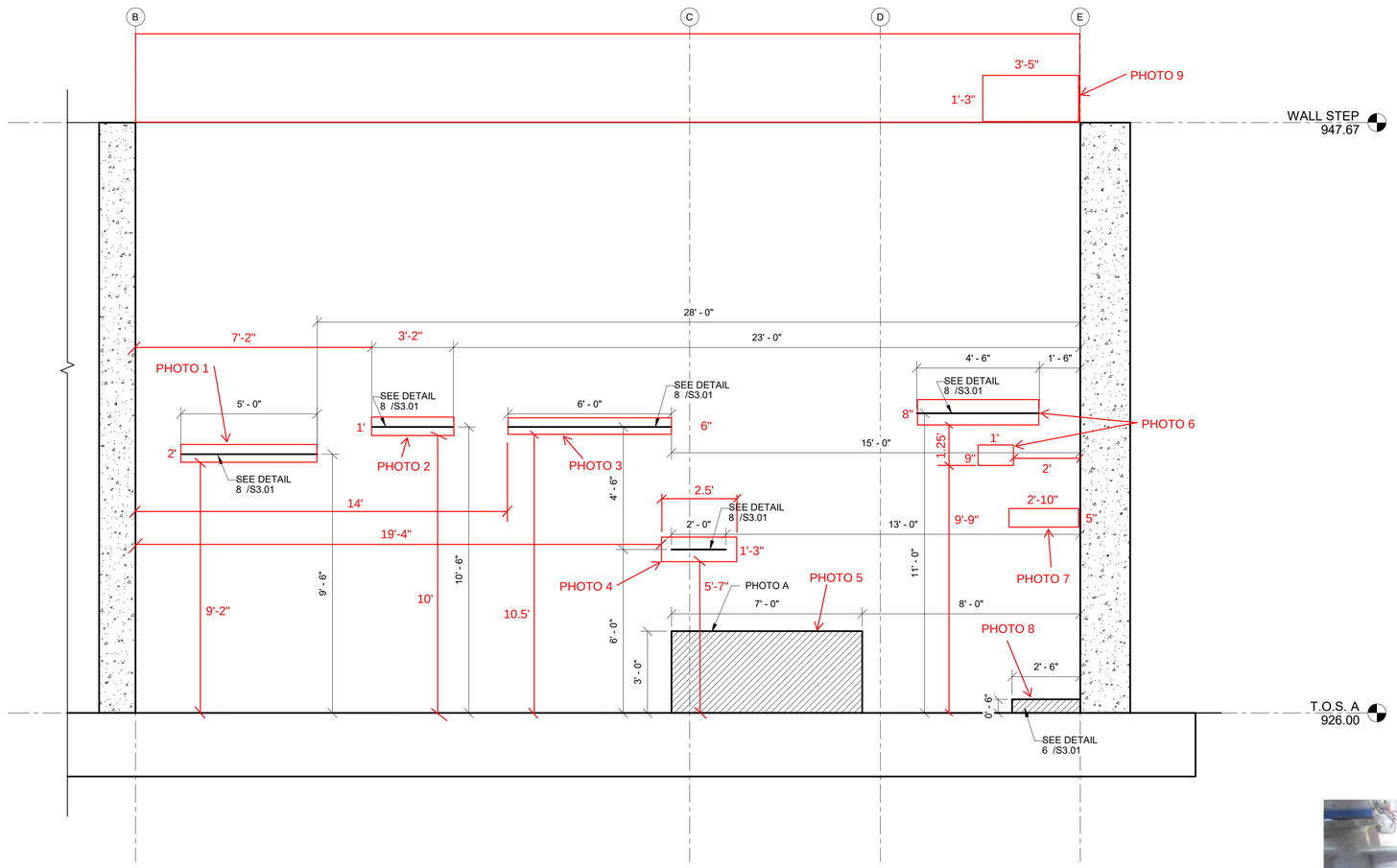
PHOTO 6

After Repair

After Repair

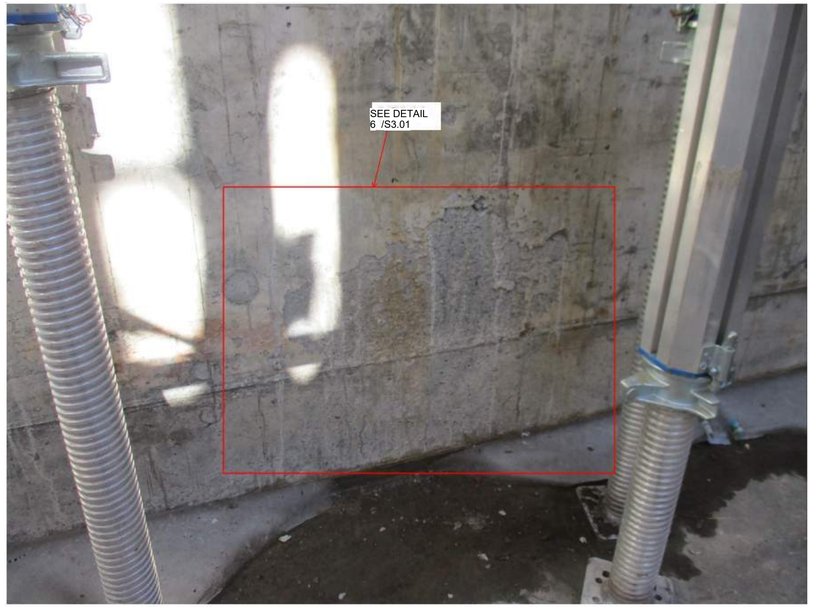
PHOTO 6

1



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

ORIGINAL REPAIRS



2 PHOTO A

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

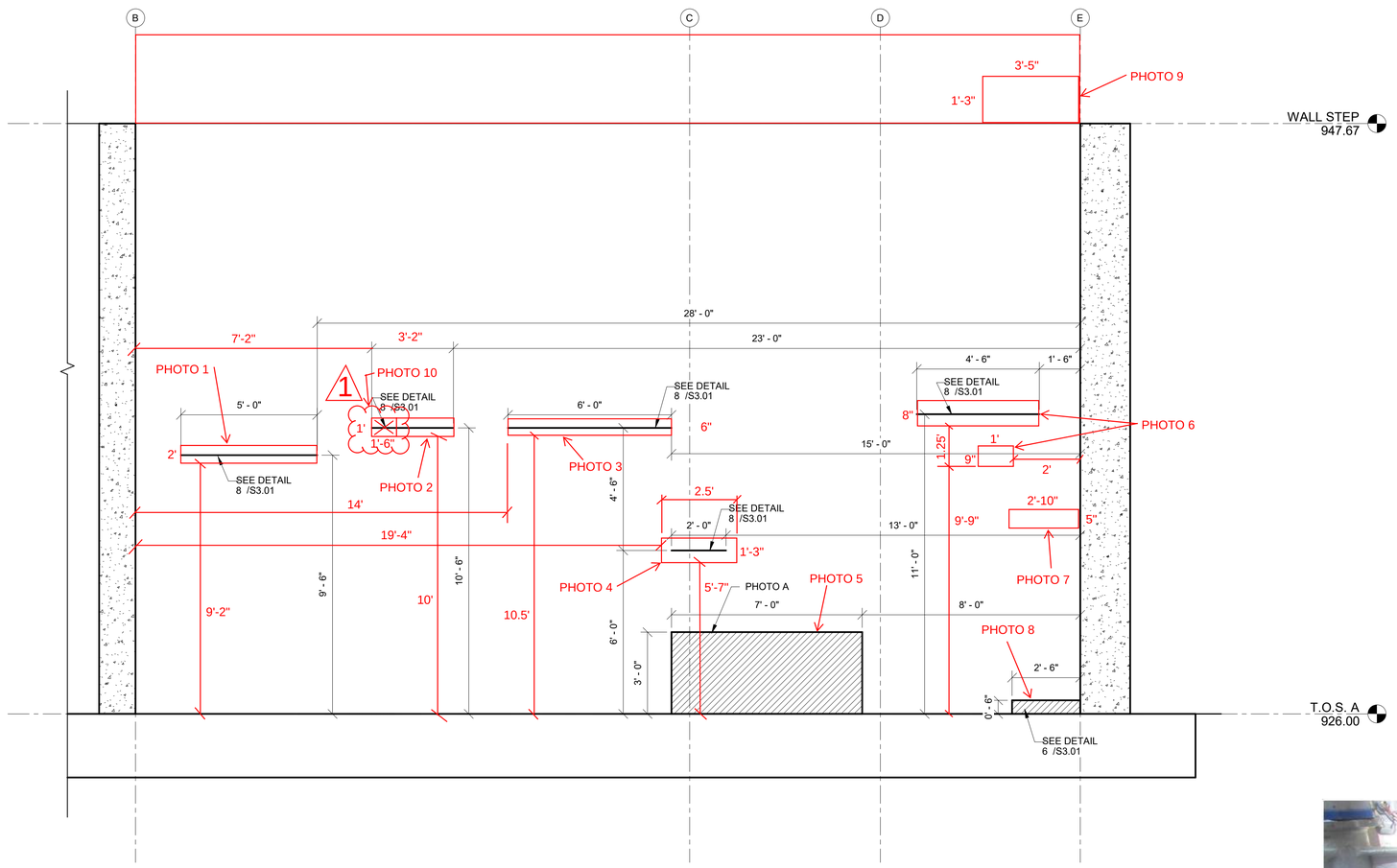
Project Status

PROJECT NUMBER	123.0172.03
DATE	03/24/2023

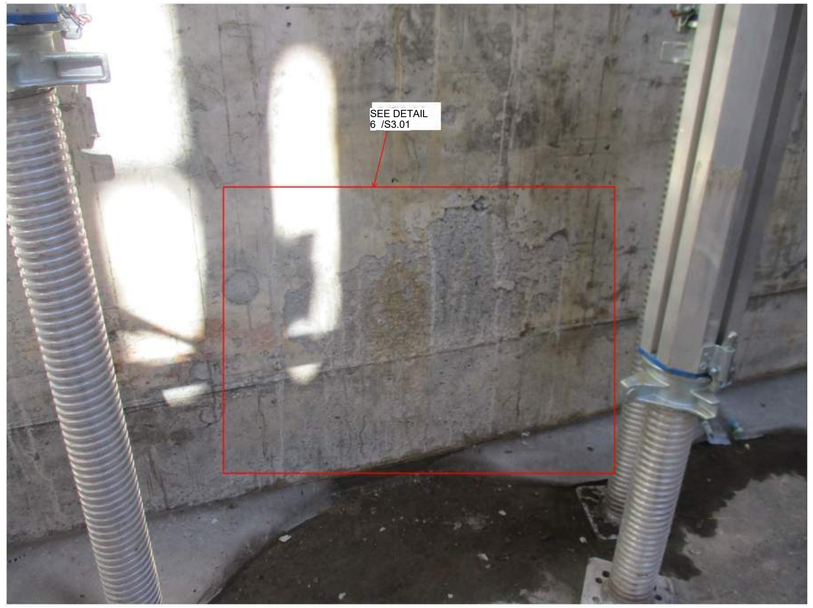
SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.32

3/24/2023 5:12:02 PM
C:\Users\chrisw\Documents\123.0172.03_STRUC_R22)_chriswHEBDR.rvt



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



2 PHOTO A

1 REVISION 1: REPAIRED EXISTING REPAIRS

LEGEND:

DENOTES REMOVAL

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NEVADA WWTP IMPROVEMENTS
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.32

3/24/2023 5:12:02 PM
C:\Users\chirvat\Documents\123.0172.03_STRUC_R22_chirvatHSBDR.rvt

Before Repair

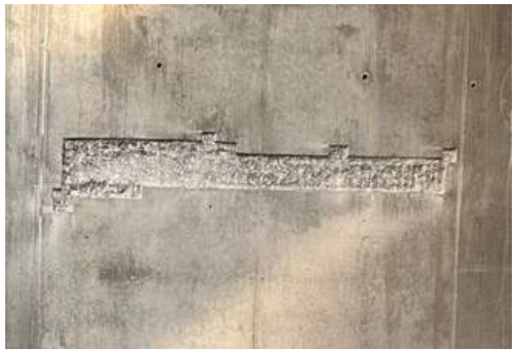
After Repair

PHOTO 1

Before Repair

After Repair

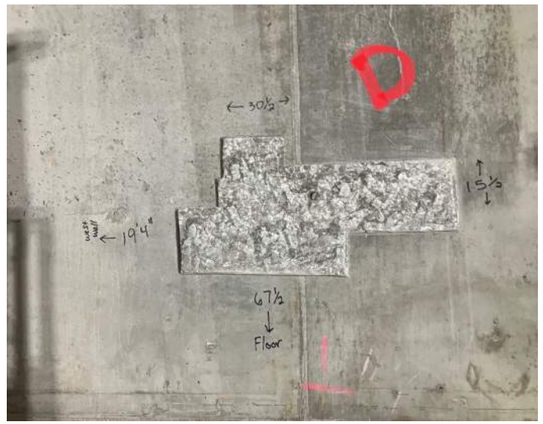
PHOTO 2



Before Repair

After Repair

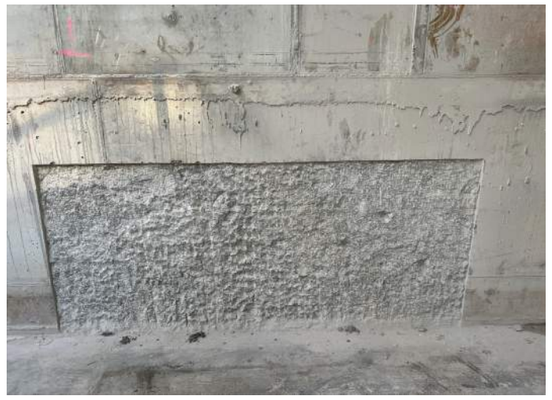
PHOTO 3



Before Repair

After Repair

PHOTO 4



Before Repair

After Repair

PHOTO 5

Before Repair

After Repair

PHOTO 6

Before Repair

After Repair

PHOTO 7

Before Repair

After Repair

PHOTO 8

Before Repair

After Repair

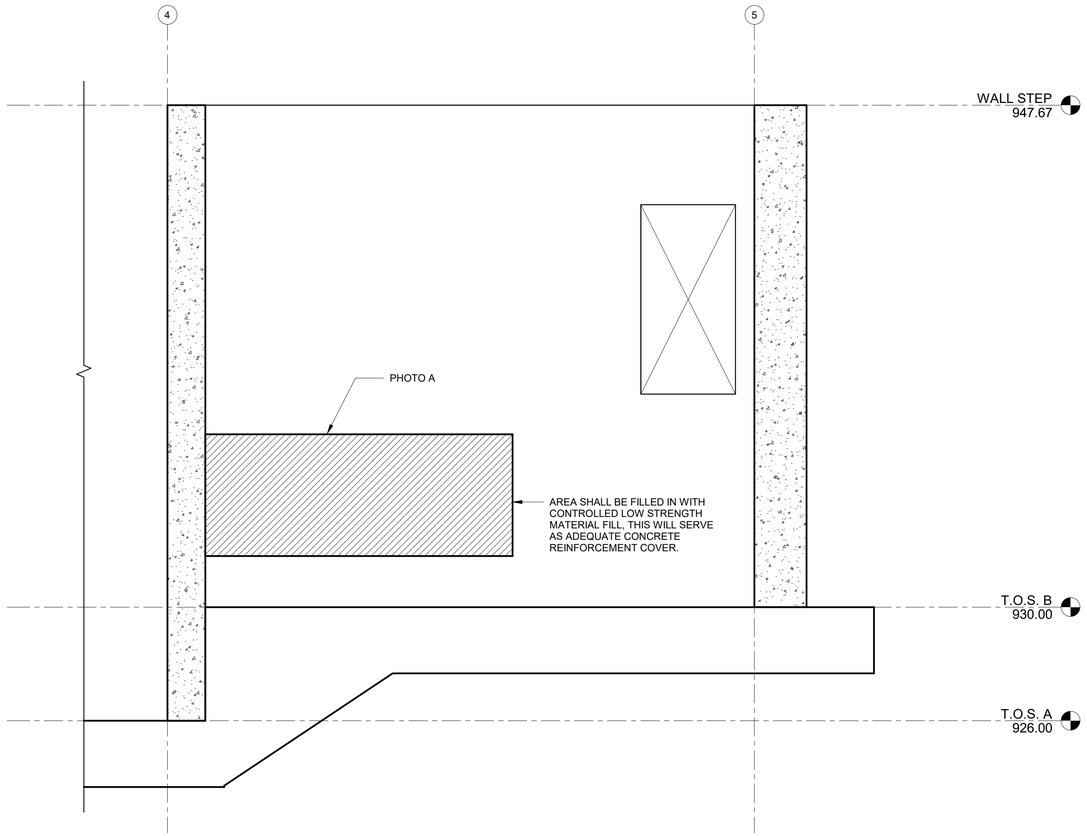
PHOTO 9

Before Repair

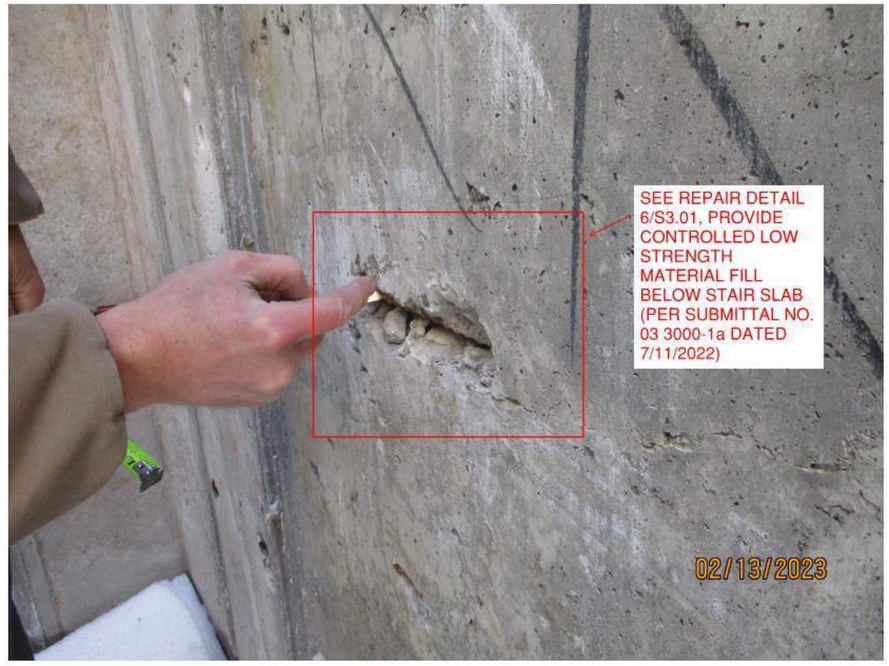
After Repair

PHOTO 10

1



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



2 PHOTO A

SHUCK BRITSON
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NEVADA WWTP IMPROVEMENTS LIMITED
CONCRETE WALL REPAIR
BOOMERANG
457 S. 6th STREET NEVADA IOWA 50201

Project Status

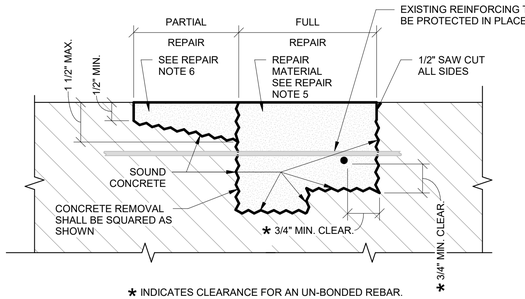
PROJECT NUMBER 123.0172.03

DATE 03/24/2023

SHEET TITLE
WALL ELEVATIONS

SHEET NO.
S2.33

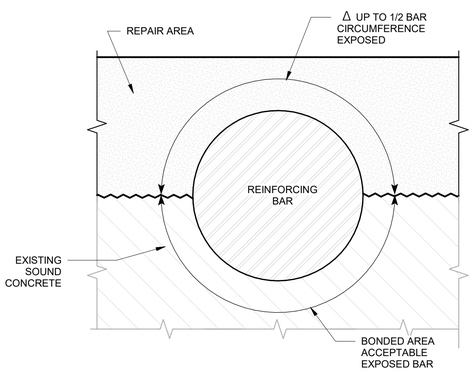
3/24/2023 5:12:03 PM
C:\Users\chrizel\Documents\123.0172.03_STRUC_(R23)_chrizel45BSR.rvt



* INDICATES CLEARANCE FOR AN UN-BONDED REBAR.

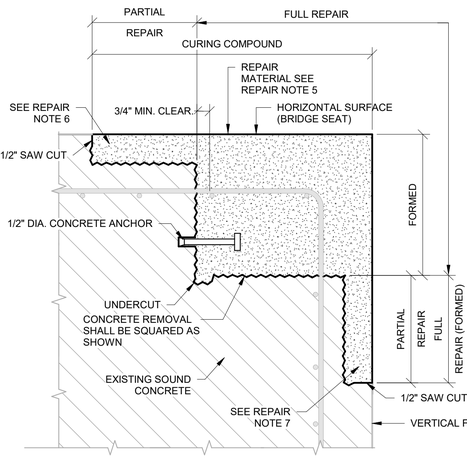
VERIFY DEPTHS W/ REPAIR MORTAR RECOMMENDATIONS

1 CONCRETE REPAIR DETAIL

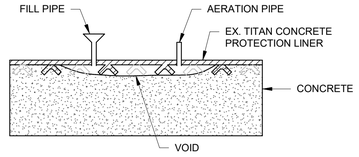


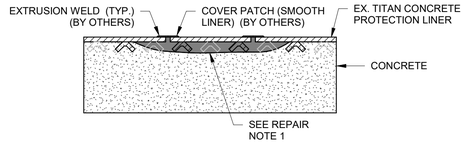
Δ IF MORE THAN 1/2 THE REBAR IS EXPOSED IT SHALL BE TREATED AS AN UN-BONDED REBAR.

3 TYPICAL REMOVAL DETAIL



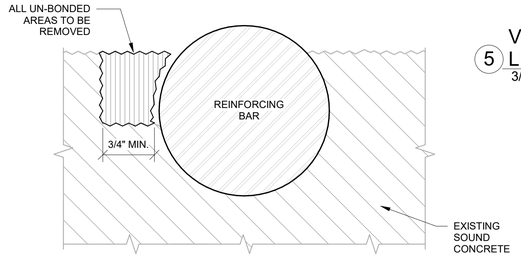
4 CONCRETE REPAIR DETAIL



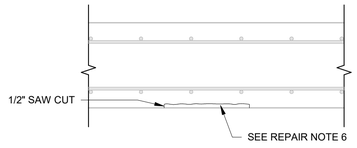


VOID BEHIND EX. TITAN CONCRETE PROTECTION LINER REPAIR DETAIL

3/4" = 1'-0"

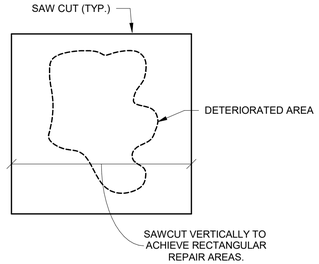


2 TYP. CONCRETE REMOVAL ADJACENT TO REINFORCING

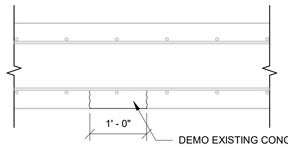


6 PARTIAL DEPTH REPAIR DETAIL

3/4" = 1'-0"

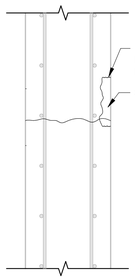


3 TYPICAL REMOVAL DETAIL



7 TEST DETAIL

3/4" = 1'-0"

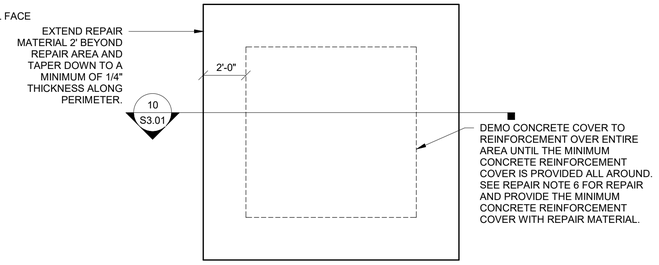


8 POUR LINE REPAIR DETAIL

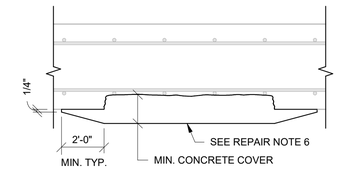
3/4" = 1'-0"

REMOVAL PROCEDURE

1. INITIATE REMOVAL OF UNSOUND CONCRETE WITH ½" SAWCUTS AT PERIMETER. DO NOT CROSS CUT AT CORNERS, BUT STOP SHORT AND REMOVE CORNERS BY HAND. ADJUST DEPTH OF SAWCUT AS NEEDED TO ENSURE NO CUTTING OF EXISTING REINFORCING.
2. PROTECT EXISTING REINFORCEMENT FROM DAMAGE DURING CHIPPING, GRINDING OR SAW CUTTING FOR SPALL/DELAMINATION REPAIR.
3. REMOVE DETERIORATED AREAS TO SOUND CONCRETE. WHEN EMBEDDED REINFORCING STEEL IS ENCOUNTERED. CAREFULLY REMOVE CONCRETE FROM STEEL WITHOUT CAUSING DAMAGE.
4. SHAPE FACE OF REPAIR AREAS TO FLUSH SURFACE.
5. WHERE HALF OR MORE OF THE PERIMETER OF REINFORCING BAR IS EXPOSED, BOND BETWEEN REINFORCING BAR AND SURROUNDING CONCRETE IS BROKEN, OR REINFORCING BAR IS CORRODED, REMOVE CONCRETE FROM ENTIRE PERIMETER OF BAR AND TO PROVIDE AT LEAST ¾ INCH CLEARANCE AROUND BAR.
6. TEST AREAS WHERE CONCRETE HAS BEEN REMOVED BY TAPPING WITH HAMMER, AND REMOVE ADDITIONAL CONCRETE UNTIL UNSOUND AND DISBONDED CONCRETE IS COMPLETELY REMOVED.
7. PROVIDE SURFACES WITH A FRACTURED PROFILE OF AT LEAST 1/8 INCH THAT ARE APPROXIMATELY PERPENDICULAR OR PARALLEL TO ORIGINAL CONCRETE SURFACES. AT COLUMNS AND WALLS, MAKE TOP AND BOTTOM SURFACES LEVEL UNLESS OTHERWISE DIRECTED.
8. THOROUGHLY CLEAN REMOVAL AREAS OF LOOSE CONCRETE, DUST AND DEBRIS.



9 CONCRETE COVER REPAIR DETAIL



10 CONCRETE COVER REPAIR DETAIL

REPAIR PROCEDURE

1. REPAIR ALL CONCRETE VOIDS WITH AVANTI AV-202 LV. AERATION PIPE SHALL BE LOCATED ABOVE FILL PIPE TO ENSURE ENTIRE VOID IS REPAIRED. CONCRETE SHALL BE SATURATED SURFACE DRY PRIOR TO REPAIR. FILL ENTIRE VOID WITH WATER AND COMPLETELY DRAIN PRIOR TO REPAIR. INSTALL PER MANUFACTURER RECOMMENDATIONS
2. NEW PATCH SHALL MATCH EXISTING FINISH.
3. SURFACE PREP EXISTING EXTERIOR CONCRETE AND REPAIRS PER BENTONITE WATERPROOFING MANUFACTURER.
4. PATCH ALL TIE HOLES PER REPAIR NOTE 6.
5. FULL DEPTH CONCRETE REPAIRS SHALL BE REPAIRED WITH SIKA CRETE – 211 SCC PLUS. REMOVE ALL DETERIORATED CONCRETE, DIRT, OIL, GREASE AND OTHER BOND INHIBITING MATERIALS FROM THE SURFACE. REMOVE ALL CORROSION FROM THE REINFORCEMENT WITH A WIRE BRUSH. APPLY BONDING AGENT, SIKA ARMATIC-110 EPOCEM TO REINFORCEMENT. CONCRETE SHALL BE SATURATED SURFACE DRY PRIOR TO REPAIR. INSTALL PER MANUFACTURER RECOMMENDATIONS.
6. PARTIAL DEPTH CONCRETE REPAIRS SHALL BE REPAIRED WITH SIKA QUICK VOH. APPLY A SCRUB COAT OF SIKA QUICK VOH TO THE CONCRETE SUBSTRATE PRIOR TO REPAIR PER MANUFACTURERS RECOMMENDATIONS. MOVE ALL DETERIORATED CONCRETE, DIRT, OIL, GREASE AND OTHER BOND INHIBITING MATERIALS FROM THE SURFACE. FOR OVERHEAD CONDITIONS, APPLY IN MAXIMUM 2" LIFTS. INSTALL PER MANUFACTURER RECOMMENDATIONS.
7. CLEAN AND PREP ALL SURFACES PER MANUFACTURERS RECOMMENDATIONS.
8. PLACE PATCH REPAIR MIX INTO PATCH AREA AND THOROUGHLY CONSOLIDATE.
9. CURE PATCH THOROUGHLY TOP AND BOTTOM. BOTTOM TO BE CURED IF FORM IS REMOVED.
10. ALL WORK SHALL BE PERFORMED AS INDICATED BY PRODUCT MANUFACTURER INCLUDING ANY COLD WEATHER CONCRETE PRACTICES.
11. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
12. WET SUBSTRATE AND FORMS THOROUGHLY AN DTHEN REMOVE STANDING WATER.
13. GENERAL TROWEL PLACEMENT: PLACE PATCHING MORTAR BY TROWELLING TOWARD EDGES OF PATCH TO FORCE INTIMATE CONTACT WITH EDGE SURFACES. FOR LARGE PATCHES, FILL EDGES FIRST AND THEN WORK TOWARD CENTER, ALWAYS TROWELLING TOWARD EDGES OF PATCH. AT FULLY EXPOSED REINFORCING BARS, FORCE PATCHING MORTAR TO FILL SPACE BEHIND BARS BY COMPACTING WITH TROWEL FROM SIDES OF BARS.
14. VERTICAL PATCHING: PLACE MATERIAL IN LIFTS OF NOT MORE THAN 1 INCH OR AS INDICATED BY MANUFACTURER, OR LESS THAN ¼ INCH. DO NOT FEATHER EDGE.
15. CONSOLIDATION: AFTER EACH LIFT IS PLACED, CONSOLIDATE MATERIAL AND SCREED SURFACE.
16. MULTIPLE LIFTS: WHERE MULTIPLE LIFTS ARE USED, SCORE SURFACE OF LIFTS TO PROVIDE A ROUGH SURFACE FOR PLACING SUBSEQUENT LIFTS AND INSTALL PER MANUFACTURERS RECOMMENDATIONS.
17. FINISHING: ALLOW SURFACES OF LIFTS THAT ARE TO REMAIN EXPOSED TO BECOME FIRM AND THEN FINISH TO A SURFACE MATCHING ADJACENT CONCRETE.
18. CURE IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
19. THE BOTTOM OF CONCRETE SLAB SHALL BE REPAIRED WITH SIKAQUICK FNP. REMOVE ALL LOOSE CONCRETE, DIRT, OIL, GREASE AND OTHER BOND INHIBITING MATERIALS FROM THE SURFACE. DO NOT REMOVE ALL POORLY CONSOLIDATED CONCRETE. REMOVE ALL CORROSION FROM THE REINFORCEMENT WITH A WIRE BRUSH. FORM THE BOTTOM OF THE SLAB OVER THE ENTIRE AREA TO BE REPAIRED. DRILL 2" DIAMETER HOLES THROUGH THE SLAB, CENTERED IN THE REPAIR AREA. START THE FIRST 2" DIAMETER HOLE APPROXIMATELY 2' FROM THE BEGINNING OF THE REPAIR AREA AND SPACE THE HOLES APPROXIMATELY EVERY 3'-4'. CONCRETE SHALL BE SATURATED SURFACE DRY PRIOR TO REPAIR. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
20. THE CONCRETE ALONG THE SIDE OF THE HATCHES SHALL BE REPAIRED PER REPAIR NOTE 5. FORM THE SIDE ALONG THE ENTIRE REPAIR AREA. DRILL (3) - 3" DIAMETER HOLES CENTERED ON THE REPAIR AREA AND EQUALLY SPACED ALONG THE LENGTH OF THE REPAIR. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
21. THE CORNER OF THE CONCRETE WALL AND SLAB SHALL BE REPAIRED PER REPAIR NOTE 5. FORM THE SLAB AND WALL ALONG THE ENTIRE REPAIR AREA. AFTER THE REMOVALS ARE COMPLETE, COORDINATE WITH THE ENGINEER ON THE SIZE OF THE REPAIR AREA PRIOR TO EXECUTING THE REPAIR. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
22. REPAIR PER REPAIR NOTE 6. AFTER THE SIKA QUICK VOH HAS CURED FOR A MINIMUM OF 3 DAYS, APPLY 2 COATS OF SIKAGARD 62 OVER A MINIMUM 2'X2' AREA. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

11 CONCRETE COVER REPAIR DETAIL

12 CONCRETE REPAIR DETAIL

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DES MOINES, IOWA 50309
515-243-4477
www.shuck-britson.com

NEVADA WWTP IMPROVEMENTS LIMITED CONCRETE WALL REPAIR BOOMERANG

457 S. 6th STREET NEVADA IOWA 50201

Project Status

PROJECT NUMBER	123.0172.03
DATE	10/27/2023

SHEET TITLE

CONCRETE REPAIR DETAILS

SHEET NO.

S3.01

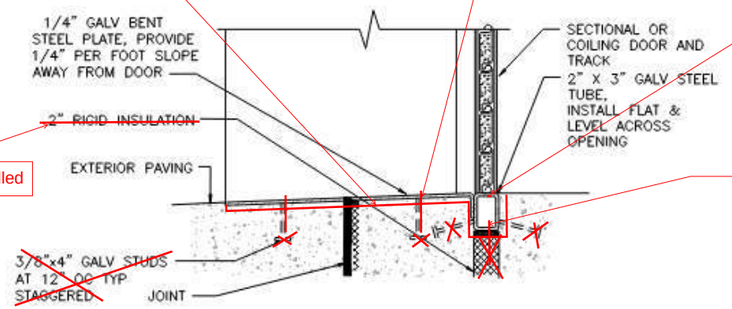
Door Embed Notes/Details:

carefully cut and remove 1/2" all around plate and embed, after plate and embeds are installed place SikaQuick FNP under and around plate and embed. use plastic shims under items as needed for placement

drill epoxy 3/8" dia x 4" female galv embeds @ 12" o.c., staggered, provide temp 3/8" x 8" thread rod (for placement), replace with 3/8" x 3" flat head screw galv. (final), dish holes for flat final fit

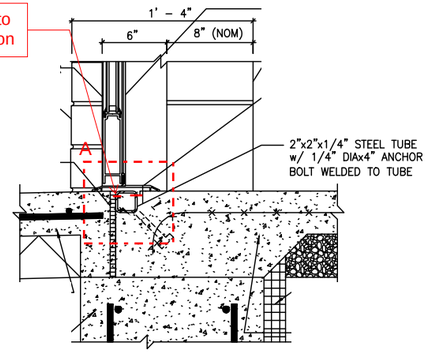
provide access holes @ each anchor, plug weld once installation complete, grind smooth & cold galv.

drill epoxy 3/8" dia x 4" female galv embeds @ 12" o.c., provide temp 3/8" x 10" thread rod (for placement), replace with 3/8" x 3" bolt galv. (final)



8 SILL ROLL-UP DOOR DETAIL
SCALE: 1 1/2"=1'-0"

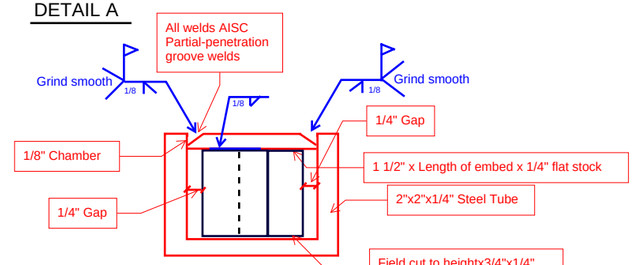
Cut top of tub to correct elevation



5 ALUM FRAME THRESHOLD
SCALE: 1 1/2" = 1'-0"

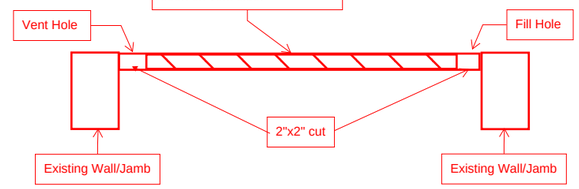
Note: SikaQuick FNP inside tube must not contain aggergatel

DETAIL A



Plan View

Two cut are made at both ends of tube to insert SikaQuick FNP into entire tube. Fill entire tube from insertion hole until product is seen on vent side.



Modified Detail from HRG SHT. A.502

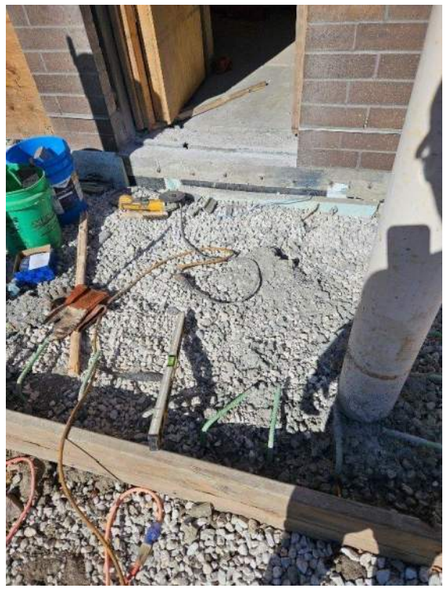
DOOR SCHEDULE

DOOR NO.	LOCATION	SIZE (WxHxD)	MAT'L	TYPE	FRAME SIZE (WxHxD)	FRAME MAT'L	FRAME TYPE	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	RATING (HR)	HARDWARE GROUP NUMBER	REMARKS
SERIES 100 - MAIN LIFT STATION - SCREEN ROOM													
1001A	SCREEN STAIR ENCLOSURE	3'-0" X 7'-0" X 1 3/4"	AL	D1	3'-4" X 7'-4" X 5 3/4"	AL	F1	3/A.502	4/A.502	5/A.502		1	Exterior
1001B	SCREEN STAIR ENCLOSURE	3'-0" X 7'-0" X 1 3/4"	FRP	D1	3'-4" X 7'-4" X 5 3/4"	FRP	F1	1/A.502	2/A.502		1.5	2	Interior
1001C	SCREEN STAIR ENCLOSURE - LOWER	3'-0" X 7'-0" X 1 3/4"	FRP	D1	3'-4" X 7'-4" X 5 3/4"	FRP	F1	1/A.502	2/A.502		1.5	2	Interior
1003	UPPER LEVEL SCREEN ROOM	6'-0" X 7'-0" X 1 3/4"	AL	D2	6'-4" X 7'-4" X 5 3/4"	AL	F2	3/A.502	4/A.502	5/A.502		4	Double Exterior
SERIES 110 - MAIN LIFT STATION - PUMP/SERVICE AREA													
1101A	PUMP STAIR ENCLOSURE	3'-0" X 7'-0" X 1 3/4"	AL	D1	3'-4" X 7'-4" X 5 3/4"	AL	F1	3/A.502	4/A.502	5/A.502		1	Exterior
1101B	PUMP STAIR ENCLOSURE	3'-0" X 7'-0" X 1 3/4"	FRP	D1	3'-4" X 7'-4" X 5 3/4"	FRP	F1	1/A.502	2/A.502		1.5	3	Interior
1101C	PUMP STAIR ENCLOSURE-LOWER	3'-0" X 7'-0" X 1 3/4"	FRP	D1	3'-4" X 7'-4" X 5 3/4"	FRP	F1	1/A.502	2/A.502		1.5	2	Interior
1103A	SERVICE ROOM	3'-0" X 7'-0" X 1 3/4"	AL	D1	3'-4" X 7'-4" X 5 3/4"	AL	F1	3/A.502	4/A.502	5/A.502		1	Exterior
1103B	SERVICE ROOM	8'-0"X10'-0"	AL	D3		AL		6/A.502	7/A.502	8/A.502			Colling
1104A	ELECTRICAL ROOM	6'-0" X 7'-0" X 1 3/4"	AL	D2	6'-4" X 7'-4" X 5 3/4"	AL	F2	3/A.502	4/A.502	5/A.502		5	Double Exterior
1104B	ELECTRICAL ROOM	3'-0" X 7'-0" X 1 3/4"	AL	D1	3'-4" X 7'-4" X 5 3/4"	AL	F1	3/A.502	4/A.502	5/A.502		6	Exterior
1105	RESTROOM	3'-0" X 7'-0" X 1 3/4"	AL	D1	3'-4" X 7'-4" X 5 3/4"	AL	F1	1/A.502	2/A.502			7	Interior

NOTE: AL = ALUMINUM; FRP = FIBERGLASS REINFORCED PLASTIC

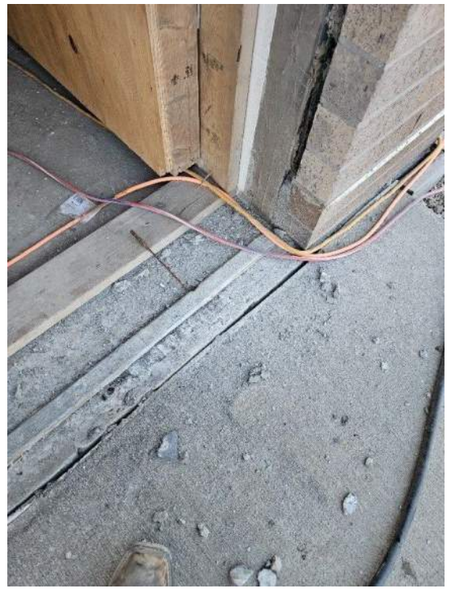
Highlighted yellow are the doors embeds that are missing or have been improperly installed

Table from HRG SHT. A.504



Before Repair

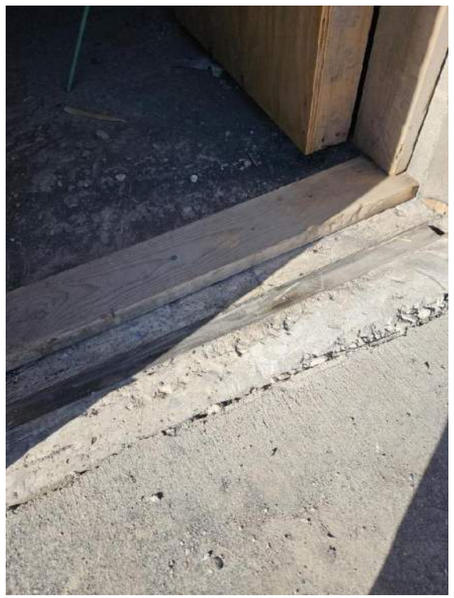
Before Repair



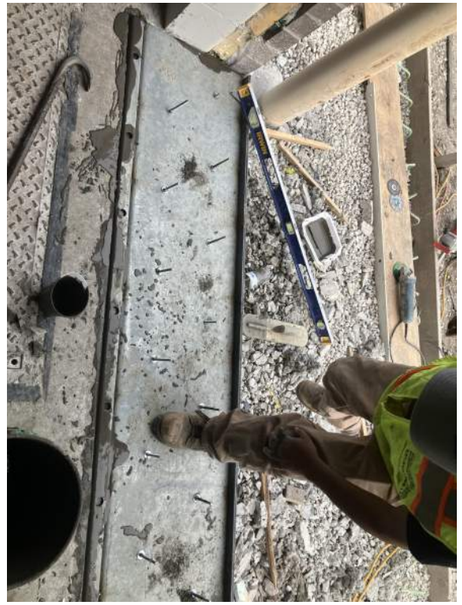
Before Repair

Before Repair

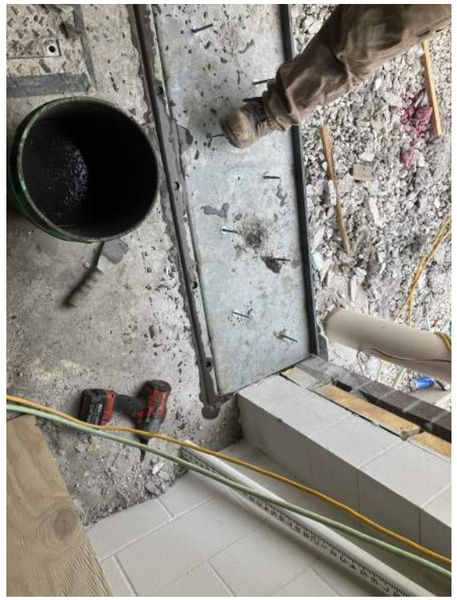
Door Embeds



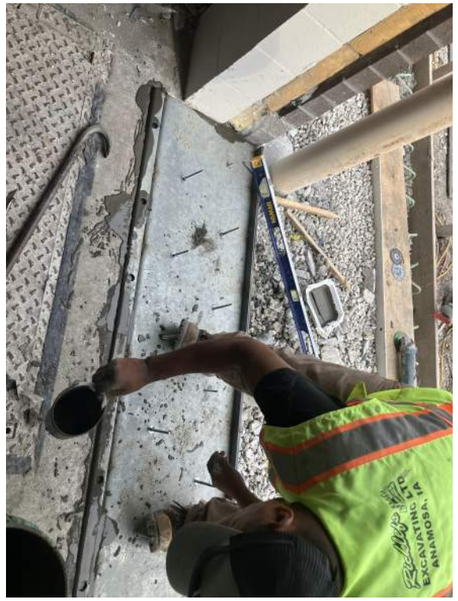
After Repair



After Repair



After Repair



After Repair

Door Embeds

BUILDING TRUST

ATTACHMENT A
(3 pages)

PRODUCT DATA SHEET

Sikagard®-62

High-build, protective, solvent-free, colored epoxy coating

PRODUCT DESCRIPTION

Sikagard®-62 is a High-build, protective, solvent-free, colored epoxy coating.

USES

Sikagard®-62 may only be used by experienced professionals.

Use as a high build, corrosion-resistant, protective coating, as a protective lining for secondary containment structures or as a seamless flooring system.

CHARACTERISTICS / ADVANTAGES

- Exceptional tensile strength.
- Good chemical resistance for long-term protection.
- Convenient A:B = 1:1 mixing ratio.
- Easy, paint-like viscosity.
- Available in 3 standard colors: gray, red, and tan.
- Excellent bonding to all common structural substrates.
- Super abrasion resistance for long-term wear.
- Sikagard® 62 gray in ANSI/NSF 61 potable water compliant
- Material is USDA certifiable.

PRODUCT INFORMATION

Packaging	4 gal. units
Appearance / Color	Gray, red, tan.
Shelf Life	2 years in original, unopened containers.
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using.
Viscosity	**Mixed:** Approximately 3,500 cps.

TECHNICAL INFORMATION

Abrasion Resistance	14 day	51 liters/mil.	(ASTM D-968)
	Abrasion (Taber Abrader) Weight loss, 1,000 cycles (H-22 wheel, 1,000 gm weight)		
	7 day	0.61 gm	(ASTM D-1044)
Tensile Strength	14 day	5,400 psi (37.3 MPa)	(ASTM D-638)

Elongation at Break	14 day	2.7%	(ASTM D-638)
Tensile Adhesion Strength	Adhesion Classification 1 day	4A	(ASTM-3359)
Permeability to Water Vapor	**Water Absorption** (24 hour immersion) 7 day	0.1%	(ASTM D-570)

APPLICATION INFORMATION

Mixing Ratio	Component 'A' : Component 'B'=1:1 by volume.
Coverage	Approximately 150-250 ft.2/gal. depending on condition of substrate.
Pot Life	Approximately 35 to 40 minutes. (60 gram mass). **Tack-Free Time**: Approximately 4 hours. **Open Time:** Light foot traffic: 5-7 hours. Rubber-wheel traffic: 8-10 hours.
Cure Time	**Immersion and Chemical Exposure**: Minimum cure: 3 days

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.
Preparation Work: Concrete - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by blast cleaning or equivalent mechanical means.
Steel - Should be cleaned and prepared thoroughly by blast cleaning.

MIXING

Pre-mix each component. Proportion equal parts by volume of Components 'A' and 'B' into a clean mixing container. Mix with a low-speed (400-600 rpm) drill using a Sika paddle for 3 minutes, until uniform in color.

APPLICATION

Apply coating using high-quality roller, brush or spray. Two coats are recommended. Apply second coat as soon as the first coat is tack-free and the traffic of application will not damage the first coat. The second coat, however, must be applied within 48 hours since a longer delay will require additional surface preparation. Do not spray with slip resistant granules mixed into the coating. For use as a seamless flooring system, consult Technical Service.

LIMITATIONS

- Minimum substrate and ambient temperature for application 50°F (10°C).
- Maximum moisture content of concrete substrate by weight when measured with a Tramex CME or CMExpert type concrete moisture meter is 4%.
- Do not apply over wet, glistening surface.
- Material is a vapor barrier after cure.
- Do not apply to porous surfaces exhibiting moisture-vapor transmission during the application. Consult Technical Service.
- Minimum age of concrete prior to application is 21-28 days, depending on curing and drying conditions.
- Do not apply to exterior, on-grade substrates.
- Use oven-dried aggregate only.
- Do not thin with solvents.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.
- On 'green or 'damp' concrete, EpoCem can be used as a pore filler to reduce vapor drive and potential osmotic blistering.

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using

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ATTACHMENT B
(4 pages)

PRODUCT DATA SHEET

Sikacrete®-211 SCC Plus

One-component, cementitious, polymer-modified, self consolidating concrete mix with an integral migrating corrosion inhibitor

PRODUCT DESCRIPTION

Sikacrete®-211 SCC Plus is a one-component, self consolidating concrete containing factory blended coarse aggregate. This self consolidating concrete bag is silica fume and polymer modified and also contains a migrating corrosion inhibitor.

USES

- Full depth repairs
- On grade, above and below grade on concrete
- On horizontal surfaces
- Vertical and overhead surfaces when formed and pumped or poured
- As a structural repair material for parking facilities, industrial plants, walkways, bridges, tunnels, dams, and balconies
- Filler for voids and cavities

CHARACTERISTICS / ADVANTAGES

- Self Consolidating Concrete - Excellent placement characteristics
- Polymer-modified
- Integral penetrating corrosion inhibitor
- Silica fume enhanced
- Prepackaged coarse aggregate. Eliminates the need to extend material in the field. Eliminates the risk of reactive aggregate
- Can be pumped or poured into forms and gets excellent consolidation without vibrating

PRODUCT INFORMATION

Packaging	65 lb. (29.5 kg) bag
Shelf Life	12 months from date of production if stored properly in original, unopened and undamaged sealed packaging
Storage Conditions	Store dry at 40–95 °F (4–35 °C) Protect from moisture. If damp, discard material

Appearance / Color	Gray powder

TECHNICAL INFORMATION

Compressive Strength	1 day	2,000 psi (13.8 MPa)	(ASTM C-39) 73 °F (23 °C) 50 % R.H.
	7 days	5,500 psi (37.9 MPa)	
	28 days	6,500 psi (44.8 MPa)	
Flexural Strength	1 day	500 psi (3.4 MPa)	(ASTM C-293) 73 °F (23 °C) 50 % R.H.
	7 days	750 psi (5.2 MPa)	
	28 days	1,000 psi (6.9 MPa)	
Splitting tensile strength	7 days	750 psi (5.2 MPa)	(ASTM C-496) 73 °F (23 °C) 50 % R.H.
	28 days	1,000 psi (6.9 MPa)	
Tensile Adhesion Strength	1 day	250 psi (1.7 MPa)	(ASTM C-1583) 73 °F (23 °C) 50 % R.H.
	7 days	300 psi (2.1 MPa)	
Slant Shear Strength	1 day	1,000 psi (6.9 MPa)	(ASTM C-882 modified)*
	7 days	1,500 psi (10.3 MPa)	
	28 days	2,500 psi (17.2 MPa)	
	* Mortar scrubbed into substrate at 73 °F (23 °C) and 50 % R.H.		
Shrinkage	28 days	< 0.05 %	(ASTM C-157 modified)
Rapid Chloride Permeability	28 days	< 650 Coulombs	(ASTM C-1202 AASHTO T-277)
Sulfate Resistance	0.006*		(ASTM C-1012)
	*Length change after 6 months at 73 °F (23 °C) and 50 % R.H.		
Freeze-Thaw Stability	300 cycles	> 99 %	(ASTM C-666)
Freeze Thaw De-Icing Salt Resistance	50 cycles	2	(ASTM C-672)

APPLICATION INFORMATION

Mixing Ratio	5.5-6 pints (2.6-2.8 L)	
Coverage	0.50 ft^3 (0.01 m_3) per bag (Coverage figures do not include allowance for surface profile and porosity or material waste)	
Layer Thickness	**Min.**	**Max.**
	1" (25 mm)	8" (203 mm)
	▪ Thicker applications have been done successfully. ▪ Please consult Sika® Technical Service.	
Consistency	Initial spread	25-30" (6.4-7.6 cm) (ASTM C-1611)
	Spread at 30 min.	> 15" (3.9 cm)
Product Temperature	65–75 °F (18–24 °C)	
Ambient Air Temperature	> 45 °F (7 °C)	
Substrate Temperature	> 45 °F (7 °C)	
Pot Life	~ 60 minutes As the temperature will affect the pot life, application temperature:	

- Above 73 °F (23 °C) will reduce the pot life and slump
- Below 73 °F (23 °C) will extend the pot life and slump

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

LIMITATIONS

- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts, with an appropriate epoxy such as Sikadur® 32 Hi-Mod.
- Refer to Sika® Antisol®-250 W product data sheet for use.

ENVIRONMENTAL, HEALTH AND SAFETY

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DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

0 g/L (EPA Method 24)

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Concrete

- Surface must be clean and sound. Remove all deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from the area to be repaired.
- Be sure repair area is not less than 1" (25 mm) deep.
- Preparation work should be done by appropriate means. Obtain an exposed aggregate surface with a minimum surface profile of ± 1/8" (3 mm) (CSP-7-8) on clean, sound concrete.
- Substrate should be Saturated Surface Dry (SSD) with clean water prior to application. No standing water should remain during application.

Reinforcing Steel

- Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust.
- Where corrosion has occurred, the steel should be high-pressure washed with clean water after mechanical cleaning.
- For priming and protection of reinforcing steel use Sika® Armatec® 110 EpoCem (consult PDS).

MIXING

- Start mixing with 5.5 pints (2.6 L) of water.
- An additional 0.5 pint (0.2 L) can be added if needed.
- Do not over water as excess water will cause segregation.
- Add Sikacrete®-211 SCC Plus while continuing to mix.
- Mechanically mix to a uniform consistency, for 3 minutes with a low-speed drill (400–600 rpm) and paddle or in appropriate-size mortar mixer or concrete mixer.

APPLICATION

- Pre-wet surface to SSD.
- Ensure good intimate contact with the substrate is achieved. To accomplish this, material should be scrubbed into the substrate or other suitable means should be employed such as vibration of the material or pumping under pressure.
- Tap form lightly while pouring or pumping, do not vibrate.
- Pump with a variable pressure pump.
- Continue pumping until a 3 to 5 psi increase in normal line pressure is evident then STOP pumping.
- Form should not deflect.
- Vent to be capped when steady flow is evident, and forms stripped when appropriate.

CURING TREATMENT

- As per ACI recommendations for Portland cement concrete, curing is required.
- Moist cure with wet burlap and polyethylene, a fine mist of water or Sika® Antisol®-250 W*.
- Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings.
- Moist curing should commence immediately after finishing.
- Protect newly applied material from direct sunlight, wind, rain and frost.

* Pretesting of curing compound is recommended.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

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BUILDING TRUST

PRODUCT DATA SHEET

ATTACHMENT C
(4 pages)

Sika® Armatec®-110 EpoCem

BONDING PRIMER AND REINFORCEMENT CORROSION PROTECTION

PRODUCT DESCRIPTION

Sika® Armatec®-110 EpoCem is a cementitious epoxy resin compensated 3-component, solvent-free, coating material with corrosion inhibitor, used as bonding primer and reinforcement corrosion protection.

USES

- Suitable in concrete repair as corrosion protection for reinforcement
- Suitable as a bonding primer on mortar, steel, and on placing fresh, plastic concrete to existing hardened concrete
- Protection to reinforcing steel in areas of thin concrete cover

CHARACTERISTICS / ADVANTAGES

- Contains EpoCem® technology - improved bonding agent
- Extended open times for repair mortars
- Excellent adhesion to concrete and steel
- Contains corrosion inhibitor
- Good resistance to water and chloride penetration
- High shear strength
- Long pot life
- Can be brushed on or applied using spray gun
- Can be used exterior on-grade
- Excellent bonding bridge for cement or epoxy based repair mortars
- High strength, unaffected by moisture when cured
- Non-flammable, solvent free

PRODUCT INFORMATION

Chemical Base

Portland cement, epoxy resin, selected aggregates and additives.

Packaging

Unit	A	B	C	ABC
3.5 gal (13.2 L)	47.6 oz (1.4 L)	122.1 oz (3.6 L)	46.82 lb (21.3 kg)	A + B in carton, C in bag
1.65 gal (6.2 L)	22.7 oz (0.67 L)	57.6 oz (1.7 L)	5.5 lb (2.5 kg) (4 bags)	Factory-proportioned units in a pail

Appearance / Color

Component A	White liquid
Component B	Colorless liquid
Component C	Gray powder

Shelf Life

12 months from date of production if stored properly in original, unopened and undamaged sealed packaging

Storage Conditions

Store dry at 40–95 °F (4–35 °C)

Protect Component A and B from freezing. If frozen, discard.
Protect Component C from moisture. If damp, discard.

TECHNICAL INFORMATION

Compressive Strength	3 days	4,500 psi (31.0 MPa)	(ASTM C-109) 73 °F (23 °C) 50 % R.H.
	7 days	6,500 psi (44.8 MPa)	
	28 days	8,500 psi (58.6 MPa)	
Flexural Strength	28 days	1,250 psi (8.6 MPa)	(ASTM C-348) 73 °F (23 °C) 50 % R.H.
Splitting Tensile Strength	28 days	600 psi (4.1 MPa)	(ASTM C-496) 73 °F (23 °C) 50 % R.H.
Tensile Adhesion Strength	**Bond of steel reinforcement on concrete**		
	Sika® Armatec® 110 EpoCem coated	625 psi (4.3 MPa)	(ASTM C-1583) 73 °F (23 °C) 50 % R.H.
	Epoxy coated	508 psi (3.5 MPa)	
	Plain reinforcement	573 psi (4.0 MPa)	
Slant Shear Strength	**Bonding agent properties** (14 d. moist cure, plastic to hardened concrete)		
	Wet on wet	2,800 psi (19.3 MPa)	(ASTM C-882) 73 °F (23 °C) 50 % R.H.
	24 hr. open time	2,600 psi (17.9 MPa)	
Permeability to Water Vapor	Control	7.32×10^{-10} ft/sec	
	145 psi (10 bar)	8.92×10^{-15} ft/sec	
Diffusion Resistance to Water Vapor	μH_2O ~100		
Permeability to CO2	μCO_2 ~14,000		
Corrosion Test	**Time-to-Corrosion Study** ▪ Sika® Armatec®-110 EpoCem more than tripled the time to corrosion ▪ Reduced corrosion rate by over 40 %		

APPLICATION INFORMATION

Fresh Mortar Density	A+B+C ~125 lb/ft³ (~2.0 kg/l)		
Coverage	**Bonding agent**	80 ft₂/gal (7.4 m₂/l)	
	Corrosion Protection	40 ft₂/gal (3.7 m₂/l)	
	(Coverage figures do not include allowance for surface profile and porosity or material waste)		
Layer Thickness		**Min. thickness of 1 coat**	**Coat**
	Bonding agent	20 mils	1
	Corrosion Protection	20 mils	2
Product Temperature	65°-75°F (18°-24°C)		
Ambient Air Temperature	40–95 °F (5–35 °C)		
Substrate Temperature	40–95 °F (5–35 °C)		
Pot Life	~ 90 minutes		
Waiting / Recoat Times	Sika repair mortars and non-fast setting concrete can be applied on Sika® Armatec®-110 EpoCem within a maximum time of:		

Temperature	Maximum Waiting Time
80°- 95 °F (26°- 35 °C)	6 hours
65°-79 °F (18°- 26 °C)	12 hours
50°- 64° F (10°- 17° C)	16 hours
40°- 49° F (4°- 9° C)	wet-on-wet

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Concrete

- Free from dust, loose material, surface contamination and materials which reduce bond or prevent suction or wetting by repair materials.
- Delaminated, weak, damaged and deteriorated concrete and where necessary sound concrete shall be removed by suitable means.
- Substrate must be Saturated Surface Dry (SSD) with no standing water.

Steel reinforcement

- Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion shall be removed by blast cleaning or other means of mechanical abrasion and reinforcement.
- Should be fully exposed and have all corrosion removed.

MIXING

- Sika® Armatec®-110 EpoCem can be mixed with a low-speed (< 250 rpm) electric drill mixer.
- Shake components A and B thoroughly before opening.
- Pour liquid components A and B into a suitable mixing vessel and mix for 30 seconds.
- While still mixing components A and B slowly add powder component C.
- Mix the three components together for a minimum 3 minutes until blend is uniform and free of lumps, minimizing addition of air.
- Mix only the quantity that you can be applied within the pot life.
- DO NOT ADD WATER.

APPLICATION

As reinforcement corrosion protection

- Apply by stiff-bristle brush or spray at 80 ft^2 /gal.
- Take special care to properly coat the underside of the totally exposed steel.
- Allow coating to dry 2-3 hours at 73 °F, then apply a second coat at the same coverage.
- Allow to dry again before the repair mortar or concrete is applied.
- Pour or place repair within 7 days

As a bonding primer

- Apply using a stiff-bristle brush or broom. To achieve good bond, Sika® Armatec®-110 EpoCem must be applied well into the substrate, filling all pores and ensure complete coverage of all surface irregularities (minimum layer thickness 1/64" (0.5 mm).
- Spray apply with Goldblatt Pattern Pistol or equal equipment.
- Apply the freshly mixed patching mortar or concrete wet on wet, or up to the maximum recommended open time, onto the bonding slurry.

CURING TREATMENT

Sika® Armatec®-110 EpoCem must be protected against contamination and rain until application of the repair mortar.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened material can only be mechanically removed.

LIMITATIONS

- Avoid application in direct sun and/or strong wind and/or rain.
- Do not add water.
- Not a vapor barrier.
- Apply only to sound, prepared substrates.
- Not recommended for use with expansive grouts and SikaQuicks
- Use of semi-dry mortars onto Sika® Armatec®-110 EpoCem must be applied "wet on wet"
- When used in overhead applications with hand placed patching mortars, use "wet on wet" for maximum mortar built thickness.
- Substrate profile as specified by the overlay or repair material is still required.
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32.

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, HEALTH AND SAFETY

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DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

A+B+C combined	50 g/l

LEGAL DISCLAIMER

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ATTACHMENT D
(2 pages)

Construction

SikaQuick® FNP

Fast-setting, one-component, polymer-modified, self consolidating, structural repair mortar with fiber and integral corrosion inhibitor for form and pour/ pumpable applications

Description	SikaQuick FNP is a self consolidating mortar for form and pour/pumping in concrete repair applications. It provides high pumpability for structural repair of columns and beams.
Where to Use	■ Horizontal, vertical and overhead repairs ■ Parking garages, bridges, beams, columns, tunnels, building facades, retaining walls and other stuctural applications ■ Pre-placed aggregate applications ■ Marine structures such as piers, dams, sea walls, etc.
Advantages	■ High fluidity for ease of pumping and pouring in congested repairs ■ Fiber reinforced ■ Integral corrosion inhibitor ■ One-component for easy mixing ■ Up to 8" (203mm) in thickness with aggregate - 3" (76mm) neat ■ Freeze/Thaw resistant ■ Extremely low shrinkage ■ Excellent bond strength
Coverage	~0.5 cu.ft. per 55 lb bag.
Packaging	55 lb bag; 48 bags per pallet

Typical Data *(Material and curing conditions @ 73°F (23°C) and 50% R.H.)*

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life:	1 year in original, unopened packaging.
Storage Conditions:	Store dry at 40°-95°F (4°-35°C).
Condition material:	Condition material to 65°- 75°F before using.
Pot Life	60 minutes
Initial Set (ASTM C 266)	70-100 min
Final Set (ASTM C 266)	2-3 hours
VOC (Method EPA 24)	0 g/L

Compressive Strength (ASTM C 109)	**psi (MPa)**
Day 1	3,500 (24.1)
Day 7	6,000 (41.4)
Day 28	7,500 (51.7)
Flexural Strength (ASTM C 293)	**psi (MPa)**
Day 1	700 (4.8)
Day 7	1,300 (9)
Day 28	1,500 (10.3)
Modulus of Elasticity (ASTM C 469)	**psi**
Day 28	$5x10^6$ psi
Chloride Perm. (ASTM C 1202/ AASHTO T277)	< 750 coulombs
Freeze Thaw Resistance (ASTM C 666)	98%
Scaling Resistance (ASTM C 672)	0 (No Scaling)
Shrinkage (ASTM C 157 modified per ASTM C 928)	< 0.06%
Direct Bond Strength (ASTM C 1583)	500-600 psi (3.4 - 4.1 MPa)

Construction

How to Use

Surface Preparation

Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface. Be sure repair area is not less than 1/4 in. in depth. Preparation work should be done by high pressure water blast, scabbler, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of ±1/8 in. (CSP-7-8). Saturate surface with clean water. Substrate should be Saturated Surface Dry (SSD) with no standing water during application.

Reinforcing Steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming and protection of reinforcing steel use Sika® Armatec® 110 EpoCem (consult Product Data Sheet).

Mixing

Start with 7/8 gal of water and add up to 1 gal per 55lbs bag in a mixing container. Add SikaQuick® FNP while continuing to mix. Mix to a uniform consistency, maximum 3 minutes. Mechanically mix with a low-speed drill (400-600 rpm) a mud paddle.

Application

- Pre-wet surface to SSD.
- Ensure good intimate contact with the substrate. To accomplish this, material should be scrubbed into the substrate or other suitable means should be employed such as vibration of the material or pumping under pressure.
- Vibrate form while pouring or pumping.
- Pump with a variable pressure pump. Continue pumping until a 3 to 5 psi increase in normal line pressure is evident, then STOP pumping.
- Form should not deflect. Vent to be capped when steady flow is evident and forms stripped when appropriate.
- For applications greater than 3" in depth, add 3/8" coarse aggregate. The addition rate is 25 lbs. of aggregate per bag of SikaQuick® FNP. (25 lbs. of 3/8" aggregate is approximately 2.0 gallons by loose volume of aggregate). The aggregate must be non-reactive (reference ASTM C-1260, C-227 and C-289), clean, well graded, saturated surface dry, have low absorption and high density, and comply with ASTM C-33 size number 8 per Table 2. Variances in aggregate may result in different strengths. No additional mix water is required.

Curing

As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based* compatible curing compound. Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost. *Pretesting of curing compound is recommended.

Limitations

- Application thickness recommended:

	Min	Max
Neat	1/4"	3"
Extended	1"	8"

- Minimum ambient and surface temperatures 40°F (4°C) and rising at time of application. Refer to the American Concrete Institute (ACI) for cold-weather or hot-weather application guidelines.
- Do not add any additives (plasticizers, accelerators, retarders, etc.) or cement to SikaQuick® FNP
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts, with an appropriate epoxy such as Sikadur® 32 Hi-Mod.
- Egg beater paddle type is not recommended for SikaQuick® FNP as it will introduce a lot of air into the mix

Visit our website at www.usa.sika.com **1-800-933-SIKA NATIONWIDE**

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

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ATTACHMENT E
(5 pages)

PRODUCT DATA SHEET

SikaQuick® VOH

Fast Setting, one component, cementitious vertical and overhead repair mortar with superior high build properties

PRODUCT DESCRIPTION

SikaQuick® VOH is a fast setting, one component, ready-to-use repair mortar for vertical and overhead applications using specialty cement blends. SikaQuick® VOH LD is a low dust formula also available as a separate item.

USES

- Fast repairs to overhead and vertical concrete and mortar surfaces on grade, above and below grade.
- As a repair material for building facades, parking structures, industrial plants, bridges, etc.
- As a fast setting repair material for new construction defects.

CHARACTERISTICS / ADVANTAGES

- Minimal time required between lifts.
- Fast finishing time
- Time/labor-saving material; application up to 3" (76.2 mm) on vertical surfaces in one layer
- Easy to use; just add water
- High bond strength ensures excellent adhesion
- High early and ultimate strength
- Increased freeze/thaw durability and resistance to deicing salts
- Suitable for exterior and interior applications.
- Overhead thickness up to 2" (50 mm)
- Fiber reinforced and polymer modified
- Contains corrosion inhibitor
- Use in cold temperatures with SikaQuick WinterBoost (20° - 45 °F)
- Low dust version available

APPROVALS / STANDARDS

- Meets ASTM C-928, type R2

PRODUCT INFORMATION

Chemical Base	▪ SikaQuick® VOH is a polymer modified, cement blends. ▪ SikaQuick® VOH LD is a polymer modified, cement blends with dust reduction technology.
Packaging	▪ 44 lb (20 kg) bag
Appearance / Color	Gray powder
Shelf Life	12 months from date of production if stored properly in original, unopened and undamaged sealed packaging.
Storage Conditions	Store dry at 40–95 °F (4–35 °C)

Protect from moisture. If damp, discard material

TECHNICAL INFORMATION

Compressive Strength (ASTM C-109) 50 % R.H.

	73 °F (23 °C)	20 °F (-7 °C) with 1 cup of SikaQuick® Winter Boost
3 hours	> 1,500 psi (10.3 MPa)	400 psi (2.8 MPa)
1 day	> 3,000 psi (20.7 MPa)	1,800 psi (12.4 MPa)
7 days	> 4,500 psi (31.0 MPa)	2,400 psi (16.6 MPa)
28 days	5,500 psi (37.9 MPa)	4,500 psi (31.0 MPa)

* Consult SikaQuick® Winter Boost Product Data Sheet.

Modulus of Elasticity in Compression	7 days	2.2×10^6 psi (15.2 GPa)	(ASTM C-469)
Flexural Strength	1 day	400 psi (2.8 MPa)	(ASTM C-293) 73 °F (23 °C) 50 % R.H.
	7 days	600 psi (4.1 MPa)	
	28 days	1,000 psi (6.9 MPa)	
Splitting tensile strength	1 day	200 psi (1.4 MPa)	(ASTM C-496) 73 °F (23 °C) 50 % R.H.
	7 days	250 psi (1.7 MPa)	
	28 days	500 psi (3.4 MPa)	
Slant Shear Strength	1 day	1,000 psi (6.9 MPa)	(ASTM C-882 modified*)
	7 days	1,600 psi (11.0 MPa)	
	28 days	2,000 psi (13.8 MPa)	

* Mortar scrubbed into substrate at 73 °F (23 °C) and 50 % R.H.

Pull-Out Resistance	> 250 psi (1.7 MPa) Substrate failure	(ASTM C-1583) 73 °F (23 °C) 50 % R.H.
Shrinkage	< 0.05 %	(ASTM C-157 modified per ASTM C-928)
Rapid Chloride Permeability	28 days — Low range	(ASTM C-1202 AASHTO T-277)

APPLICATION INFORMATION

Mixing Ratio 6–6.5 pts (2.8-3.1 L) per bag

Fresh mortar density 125 lb/ft$_3$ (2.0 kg/L) (ASTM C-138)

Coverage 0.44 ft$_3$ (0.01 m$_3$) per bag
(Coverage figures do not include allowance for surface profile and porosity or material waste)

Layer Thickness

	Min.	Max.
Overhead	1/8" (3 mm)*	2" (51 mm)
Vertical	1/8" (3 mm)*	3" (75 mm)

* Minimum thickness is 1/2" (12.7 mm) with the use of SikaQuick® Winter Boost

Product Temperature 65–75 °F (18–24 °C)

Ambient Air Temperature	> 45 °F (7 °C) 20 - 45 °F (-6.7 - 7 °C) with the use of SikaQuick® Winter Boost	
Substrate Temperature	> 45 °F (7 °C) 20 - 45 °F (-6.7 - 7 °C) with the use of SikaQuick® Winter Boost	
Set Time	10-25 min	(ASTM C-266)
Final set time	< 35 min * To control setting times, cold water should be used in hot weather and hot water used in cold weather.	(ASTM C-266)
Application Time	~ 15 minutes	
Finishing time	20–30 minutes	

Waiting / Recoat Times

Time between lifts	Final set time
Acrylic water based	4 hrs
Epoxy/PU based	6 hrs

Compatibility and adhesion testing is always recommended.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

- Surface must be clean, sound and free of frost.
- Remove all deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from the area to be repaired.
- Preparation work should be done by high pressure water blast, scabbling or other appropriate mechanical means to obtain an exposed aggregate surface profile of ±1/16" (1.6 mm) (CSP-5).
- To ensure optimum repair results, the effectiveness of decontamination and preparation should be assessed by a pull-off test.
- Saw cutting of edges is preferred and a dovetail is recommended.
- Substrate should be Saturated Surface Dry (SSD) with clean water prior to application. No standing water should remain during application.

With SikaQuick® Winter Boost

- All the above recommendations must be followed.
- The concrete must be frost free before the application.

PRIMING

- Reinforcing steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatec® 110 EpoCem (consult PDS).

- Concrete Substrate: A scrub coat of SikaQuick® VOH / SikaQuick® VOH LD can be applied prior to placement of the mortar. The repair mortar must be applied into the wet scrub coat before it dries.

MIXING

- Wet down all tools and mixer to be used.
- Mix mechanically with a low-speed drill (400–600 rpm) and mixing paddle or mortar mixer.
- Mix to a uniform consistency, maximum 3 minutes.
- Manual mixing can be tolerated only for less than a full unit.
- Thorough mixing and proper proportioning of the powder and liquid is necessary.
- Inaccurate proportioning of the powder to liquid will result in a finished product that may not conform to the typical published performance property values.

With water

- Start mixing with 6 pints (2.8 L) of water per bag.
- Adjust the water dosage by a maximum amount of +/- 1/2 pint, if necessary, to achieve the desired consistency.
- Do not over-water. Over-watering may result in difficulty handling and/or not meeting stated property values.

With Sika Latex R

- Start mixing with 6 pints (2.8 L) of Sika Latex® R per bag.
- Adjust the Sika Latex® R dosage by a maximum amount of +/- 1/2 pint, if necessary, to achieve the desired consistency.
- Do not overdose with SikaLatex® R. Using too much SikaLatex®-R may result in difficulty handling and/or not meeting typical published performance property values.

With SikaQuick® Winter Boost

- Pour the recommended volume of clean, potable water [> 34° F (- 1° C)] into a suitably sized and clean mixing container.
- Add 1/2 or 1 cup per bag into the water and mix until it is dissolved.
- Add the contents of the SikaQuick® VOH / SikaQuick® VOH LD bag while continuing to mix.

- Refer to the current Product Data Sheet for complete and detailed instructions on the use of the SikaQuick® Winter Boost.

APPLICATION

- The mixed SikaQuick® VOH / SikaQuick® VOH LD must be worked well into the prepared substrate, filling all pores and voids.
- Compact well. Force material against edge of repair working towards the center. Thoroughly compact the mortar around exposed reinforcement.
- After filling repair, consolidate, then screed.
- Finish with steel, magnesium, wood, plastic floats, or damp sponges, depending on the desired surface texture.

MULTIPLE LIFTS

- Where multiple lifts are required, score top surface on each lift to produce a roughened substrate for next lift.
- Allow preceding lift to harden and achieve initial set before applying fresh material.
- SSD previous lift by lightly misting with clean water. Remove all standing droplets.
- Repeat procedure until desired installation thickness is achieved. Finish the final lift of SikaQuick® VOH / SikaQuick® VOH LD as described above.
- If previous layers are over 6 hours old, mechanically prepare the substrate and dampen.

CURING TREATMENT

- As per ACI recommendations for Portland cement concrete, curing is required.
- Moist cure with wet burlap and polyethylene, a fine mist of water or Sika® Antisol®-250 W*.
- Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings.
- Moist curing should commence immediately after finishing.
- Protect freshly applied mortar from direct sunlight, wind, rain and frost.

* Pretesting of curing compound is recommended.

CLEANING OF TOOLS

- Uncured product may be cleaned from tools and surfaces with water.
- Cured product must be removed mechanically.

LIMITATIONS

- Do not use solvent based curing compounds.
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32.
- Remixing product after it begins to set is prohibited.
- Bonding agents like Sika® Armatec® 110 EpoCem and others, which cure at a slower rate than SikaQuick® VOH / SikaQuick® VOH LD, should not be used. If bonding agents are used, follow cure times for the bonding agents used as a guide prior to putting SikaQuick® VOH / SikaQuick® VOH LD in service. Assure suitability with the manufacturer of the bonding agent.
- Not a vapor barrier
- If a bonding agent is absolutely necessary, and surfaces are not scheduled to receive a vapor barrier coating, consider Sikadur® 32, Hi-Mod and moist cure for a minimum 24 hours prior to putting SikaQuick® VOH / SikaQuick® VOH LD into service.
- SikaQuick® VOH / SikaQuick® VOH LD is not a vapor barrier after cure.
- Ensure temperature do not drop below 20°F the first 3 hours after application of the SikaQuick® VOH mixed with SikaQuick® Winter Boost.
- Refer to Sika® Antisol®-250 W product data sheet for use.

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

LEGAL DISCLAIMER

- **KEEP CONTAINER TIGHTLY CLOSED**
- **KEEP OUT OF REACH OF CHILDREN**
- **NOT FOR INTERNAL CONSUMPTION**
- **FOR INDUSTRIAL USE ONLY**
- **FOR PROFESSIONAL USE ONLY**

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